

Saba Enterprise 5.5

Content Management Guide



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Preface

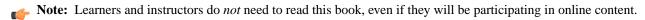
About This Guide

Welcome to the Content Management Guide for Saba Learning Suite. This guide describes how to use Saba Content Manager to develop and manage content through its life cycle. It also describes the content administration tasks for content if Saba Content Management is enabled in the system.

This guide is intended for content developers if Saba Content Management is installed. The following roles play a part in developing content:

- *Content administrators* define content teams, define custom metadata, create project templates, create projects and assign project teams.
- Project Owners manage projects, publish content, update content and maintain the Shared Resource Library.
- Content Editors create content, check in and check out content, promote content to stage area and send content for review.

Of course, a single person may act in more than one of these roles. It is entirely possible for a single person to both act as a content owner (managing the content project) and a content editor (working with content).



Notational Conventions

This guide uses the following notational conventions:

Table 1: Notational Conventions

Description	Convention	Example
Code examples	Courier	set $p(x)=(3,2,5,qfile)$
Fixed user input data	Arial	At the command prompt, type the following: start saba
Variable user input data	Times Italic	At the command prompt, type the following: start saba your_username
Names of screen/interface elements, including: • Fields • Icons • Buttons • Menus • Menu Options • Keyboard shortcuts	Arial Bold	Click the Find icon on the toolbar. To remove a condition from the window, select a condition from the list and click Remove . Click OK . Press the F5 key to refresh the data in a window. To import an image, select File > Import .
Names of screens, windows, dialog boxes, pages, and areas in pages	Times Bold Italic	Click the icon to display the Select a Value dialog box. Use this button to open the Sort By window. Use the Find Object page to query and view records for a specified type of object.
Names of operating system objects, including: • System names • File names • Directory names	Times Bold	Copy the Createev.sql script to your server machine. Navigate to the appropriate sub-directory (unix or win~dows) for your operating system.
Hypertext links	Blue color	Notational Conventions on page xiii
Titles of documents	Italic	Saba Desktop User Guide

How to Contact Saba

For contact information, see our company Web site: http://www.saba.com.

Part

I

Overview

Topics:

- Overview of Saba Content Management
- Overview of Saba Content Manager

Chapter

1

Overview of Saba Content Management

Topics:

- Core Functions of Saba Content Management
- Integration of Saba Content Management with Saba Learning
- Saba Content Management Architecture
- Content Repository
- Content Management
- Configurable Templates for Online Player
- Offline Player
- Assessment Authoring

Saba Content Management provides a distributed environment for consolidating content in a central repository and managing the content through various life cycle processes. It helps you consolidate, organize, manage and reuse content that is developed and stored in different locations across the organization.

Core Functions of Saba Content Management

Using Saba Content Management, you can perform the following functions:

- Administrative functions:
 - Create projects
 - Assign users to projects
 - Assign functional roles to users
- File Management functions
 - Import content
 - · Check-in and check-out content
 - Version content
 - Label content files
- Workflow management functions
 - Manage content through development cycle
 - Assemble content packages
 - Submit content for review
 - Incorporate feedback from multiple reviewers
 - · Publish content
 - · Update and enhance content

Key Benefits

Saba Content Management offers you a number of benefits. You can:

- Rationalize your content processes.
- Standardize the content being delivered to users.
- · Reuse content assets.
- Leverage subject matter experts as content contributors.
- Deliver content through a knowledge portal.
- Protect the security of sensitive content.
- Manage content servers and deploy content, providing scalability in content delivery.
- Integrate with other third party content creation and content management systems, owing to the open repository architecture.

Integration of Saba Content Management with Saba Learning

Content developed using Saba Content Management is consumed by end users via Saba Learning. The following diagram illustrates the integration between the applications:

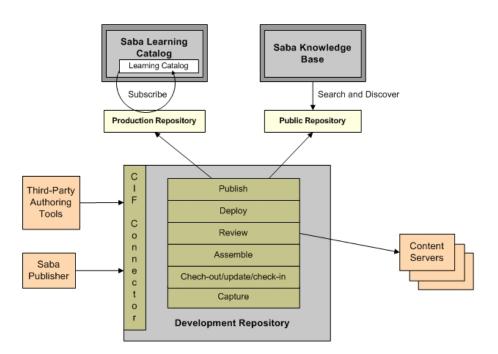


Figure 1: Integration of Content Applications

Content development takes place in the development repository. You can perform the following functions in the development repository:

- Capture content
- Check-out, update and check-in content
- Assemble content
- Review content
- Deploy content on content servers
- Publish content to the Production Repository

Most functions in the development repository are performed in Saba Content Manager.

Once content is ready for consumption, it is deployed to content servers. When the end users consume the content, it is served from a content server, and their browsers make a direct connection with the content server on which the content is deployed.

When content is ready for consumption, it is published from the development repository to the production environment. You can publish content to any one of the following areas within the Production Repository:

- Production repository: Catalog administrators can browse and search for content published to the Production Repository. Learning offerings in the Saba Learning Catalog subscribe to content in the Production Repository. When content in the Production Repository is consumed, the content can be tracked and results reported back to Saba Learning.
- Knowledge Base: End users can browse and search for content in the Saba Knowledge Base. When content in this repository is consumed, the results are not reported back to Saba Learning

You can author content using any authoring tool of your preference, or a mix of different tools. Saba does not compel users to flow all content through an integrated authoring environment.

Saba Content Management provides tight integration with several popular content authoring tools, including:

- Saba Publisher
- Macromedia Dreamweaver
- Microsoft Office authoring tools

Saba Content Management Architecture

Saba Content Management consists of various components that are installed on the server and on individual machines of content developers.

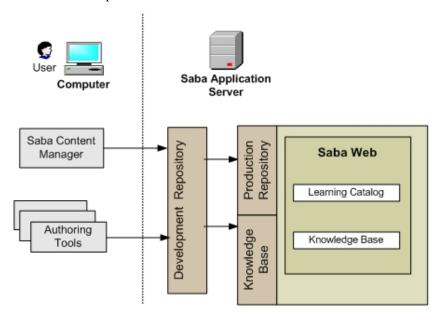


Figure 2: Saba Content Management Architecture

Saba Content Manager is a desktop client tool that is installed on the content developers' individual machines. Content developers use authoring tools to develop the content. Saba Content manager is an interface that enables content developers to manage the content that they develop.

On the server side is the content repository, made up of the development repository, Production Repository, and the Knowledge Base. The development repository is used by content developers during the development of content. It is accessed through the Saba Content Manager interface. The Production Repository is used by content developers, content administrators and catalog administrators. The Knowledge Base is used by content administrators, content developers and users. The Production Repository and Knowledge Base are accessed through the application interface.

Saba provides a delivery environment that enable uses to consume content in the learning catalog or the Knowledge Base either online, using Saba Online Player, or offline, using Saba Offline Player.

Content Repository

The content repository is both a metadate repository and a physical asset repository. It stores information about the content, as well as physical content assets themselves. For example, you might store information about a content resource that is physically stored on an external system (this information would include a pointer to its location), or you might capture the physical assets for the content into the Saba content repository and have the system manage deployment to content servers.

Saba content repository is partitioned into the following structures:

- Development Repository
- Production Repository

Each partition of the repository is structured as a hierarchy of folders. These folders are used to organize the content, making it easier to find the right piece of content when you need to subscribe to it or edit it. The folders do not have any effect on where the actual content is stored, or who has permission to use it.

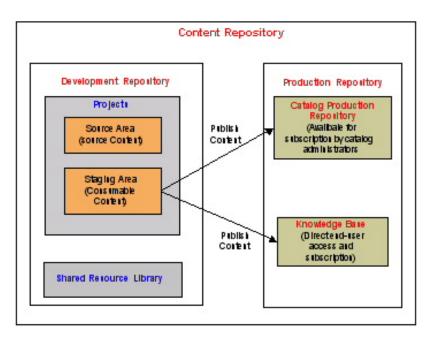


Figure 3: Content Repository Structure

Development Repository

The development repository provides file management functions and workflow capabilities for managing content through various life cycle processes. The development repository consists of the following areas:

- Projects
- Library

Projects

Content in the development repository is organized into projects. Each project has its own team members assigned to user roles, its own timeline and deliverables, and its own organizational structure. Conceptually, projects are divided into the following areas:

- Source Area on page 21
- Stage Area on page 22

Source Area

The Source area is used to manage content while it is in the process of being developed. Content in the source area is not intended for consumption and may not even be in a format that can be displayed in a web browser. Typically, the content managed in the source area are the files used to generate the consumable format that is ultimately published for access by end users. Since content in the source area are not consumable learning objects, source files do not support learning object metadata.

You can perform the following functions in the source area:

- Import source content
- Check-out content files (with locking)
- Check-in content files (implicit versioning)
- Get a local copy of a content file
- Pull back to a previous version
- Copy content to Shared Resource Library
- Assign release labels
- Promote to Stage Area

Stage Area

The Stage area is used to manage content once it is provided in a consumable format. Content provided in a consumable format is called a learning object. All learning objects in the Stage area support a flat learning object metadata model. In the stage area, content can be managed through review and update cycles and ultimately published to production.

You can perform the following operations in the Stage area:

- Import consumable content
- Get a local copy of a content file
- Update with local copy of a content file
- Version content files
- Initiate review cycle
- Approve or reject content
- Copy content to Shared Resource Library
- · Assemble packages
- Assign release labels
- · Publish to production
- · Deploy to content servers

Library

The Library area stores common content resources. These content resources are shared across projects and can be reused by content editors. Reusable objects such as assets, learning objects, and templates can be imported, shared, copied and linked to other content projects.

The Library is predefined with a top-level taxonomy that sub-divides it into the following:

- Assets
- · Learning Objects
- Authoring Templates
- · Player Templates
- Ouestion Pools

You can define an organizational taxonomy in levels deep underneath these top level folders.

Production Repository

When content is ready for consumption by end users, it is published to the Production Repository. The Production Repository does not store the physical assets, but provides an index of content that is available for consumption. It keeps track of content published from the development repository to content servers. It consists of two branches:

- Production Repository
- Knowledge Base

Both branches of the Production Repository support a user defined taxonomy of folders for browsing the repository and a metadata model for searching the repository.

Production Repository

The Production Repository contains content that is available for subscription by learning offerings in the Saba Learning Catalog. Learning offerings subscribe to content in the Production Repository. The Production Repository is primarily used by catalog administrators.

Knowledge Base

The Knowledge Base contains content for public consumption directly. End users browse or search the Saba Knowledge Base to find and consume content directly.

Content Management

Saba Content Management provides extended workflow for content management. You can capture, edit, review, approve, promote and update content. You can also check-in, check-out and version content.

For more information about the functions and capabilities, see:

- Content Roles
- Content Development Life Cycle
- Content Conversion
- Content Assembly
- Metadata Search

Content Roles

The following content roles interact with the system for the management and development of content.

- Content Administrators
- **Project Owners**
- Content Editors
- Content Reviewers
- **Content Contributors**

Content Administrators

Content administrators manage the content repository, manage content servers and perform functions related to the management and development of content. Content administrators perform the following functions:

- Manage the content repository
- Define and manage content servers
- Create projects
- Assign project owners
- · Define content teams

Project Owners

Project owners manage projects assigned to them. They perform the following functions:

- Define project structure
- Assign project roles
- Close content reviews
- Promote content to production
- Deploy content to content servers

Content Editors

Content editors author content. Project owners assign content editors to a project. They perform the following functions:

- Author content
- Update content
- Check-in and check-out content files
- Assemble content
- Initiate reviews

Content Reviewers

Content reviewers review content authored by content editors. Project owners assign content reviewers to a project. Content reviewers perform the following functions:

Review content

- Approve or reject content
- · Add review comments

Content Contributors

Content contributors contribute content that aid the development of a project. They are usually subject matter experts (SMEs) and can be distributed all across the organization. The content contributor interface in Saba Content Administration provides an interface that allows SMEs to contribute content into content development projects without having to use Saba Content Manager.

Content Development Life Cycle

Content development consists of the following phases:

Phase One: Project Initiation
Phase Two: Project Definition
Phase Three: Content Creation
Phase Four: Content Review
Phase Five: Publish Content

• Phase Six: Update Published Content

The tasks in each phase are carried out by specific content roles.

Phase One: Project Initiation

Content Role: Content Administrator

During the initiation phase of a project, content administrators perform the following tasks:

- 1. Define content teams
- 2. Create a project
- 3. Assign project owners

Content administrators perform tasks both in Saba Content Administration and in Saba Content Manager:

- In Saba Content Administration, content administrators define content teams. They add team members to the content teams. They also add Content Contributors.
- The diagram below is a pictorial representation of the tasks performed by content administrators in Saba Content Manager.

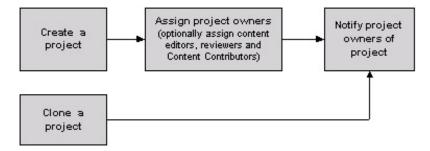


Figure 4: Content Administrator Workflow in Saba Content Manager

Phase Two: Project Definition

Content Role: Project Owner

After the initiation of a project, project owners define the project structure and assign content developers to the project.

In the project definition phase, all tasks are performed in Saba Content Manager.

The diagram below describes the tasks performed by project owners to define projects.



Figure 5: Project Owner Workflow in Saba Content Manager

Phase Three: Content Creation

Content Role: Content Editors

Content editors author content using an authoring tool of their choice. Saba does not compel uses to flow all content through an integrated authoring environment. Saba Content Manager is used for source control and workflow of content.

The content creation phase involves one or more of the following:

- Creating New Content on page 25
- Updating Content on page 25
- Assembling Content on page 26

Creating New Content

The diagram below describes the tasks involved in the creation of new content.

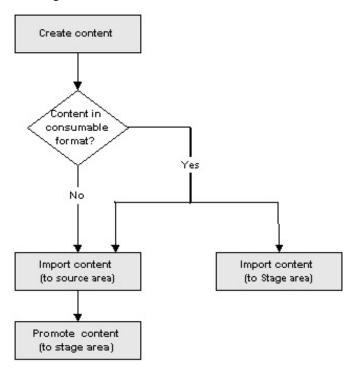


Figure 6: Tasks Involved in Content Creation

Updating Content

Content editors may need to modify content after it is promoted to stage or even after it is promoted to production. Based on feedback received from content reviewers, content editors may update content.

The diagram below enumerates the tasks involved in updating content.

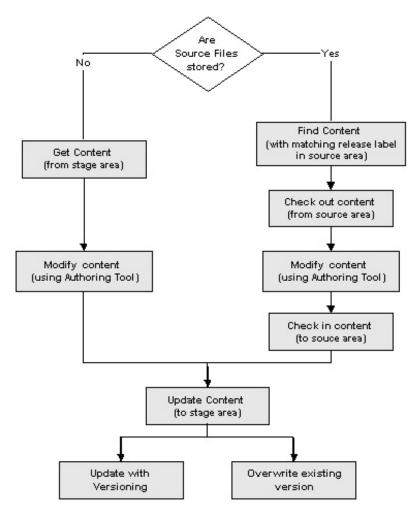


Figure 7: Tasks Involved in Updating Content

Assembling Content

You can assemble new content packages by combining modules of existing content packages or assets. This facilitates reuse of existing content. Perform the following tasks to assemble content:

- 1. Create a new package
- 2. Add sections (optional)
- 3. Add items from the current project or from Library
- **4.** Arrange items in the desired sequence
- 5. Save package to project
- 6. Publish package to SCORM package format

Phase Four: Content Review

Once content is developed and ready for consumption, it can be reviewed by content reviewers. For review, content must be in the stage area.

The cycle of review includes the following steps:

Step 1: Review Initiation (by content editor or project owner)

Review is initiated when the content in the stage area is sent for review by the content editor or project owner. This is done in Saba Content Manager. Content can be sent multiple reviewers for review.

Step 2: Review of Content (by content reviewers)

Content is reviewed by content reviewers Then can add review comments and approve or reject the content.

Note: Review of content is done from individuals in My Saba and not from Saba Content Manager.

Step 3: Review Completion (by project owner)

Once the target date for review is reached, the project owner views the review status. If the content has not been reviewed by an important reviewer, the project owner makes the decision to extend the target date for review, or to publish the content without review.

If the content is reviewed, the project owner decides to approve or reject the content. If the content is rejected, a notification is sent to the content editor. If the content is approved, project owner publishes the content.

The diagram below explains the review cycle.

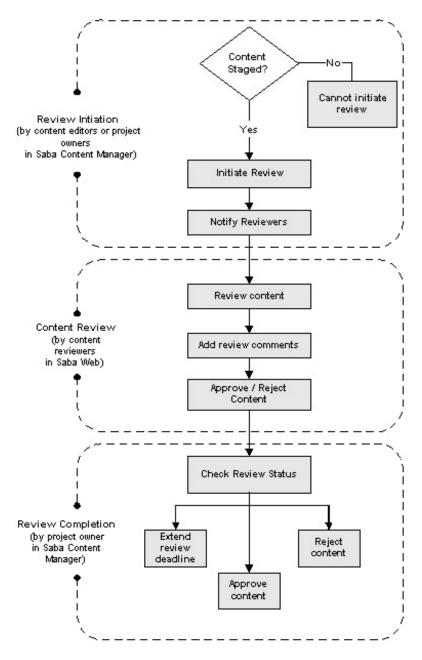


Figure 8: Review Cycle

Phase Five: Publish Content

Content can be published to the production environment once it is promoted to stage area, even if has not undergone the cycle of review. If review has been initiated for a content, then the review must be completed and content approved, before you publish the content. You can publish content to any of the following branches of the Production Repository:

- Production repository
- · Knowledge Base

The diagram below describes the tasks in publishing content. These tasks are performed in Saba Content Manager.

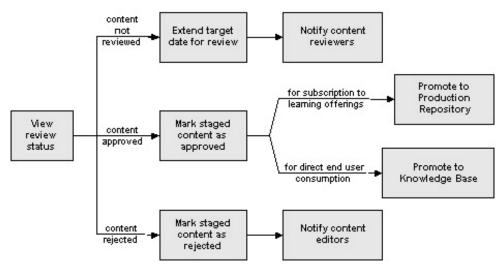


Figure 9: Tasks Involved in Publishing Content in Saba Content Manager

Phase Six: Update Published Content

You can update published content. Updating published content involves the following tasks:

- 1. Check-out content
- 2. Modify content
- 3. Check-in content with implicit versioning
- 4. Promote to stage
- 5. Review and approve content
- 6. Re-deploy content
- 7. Update production content

The diagram below describes the tasks in updating published content and the content role that performs each task.

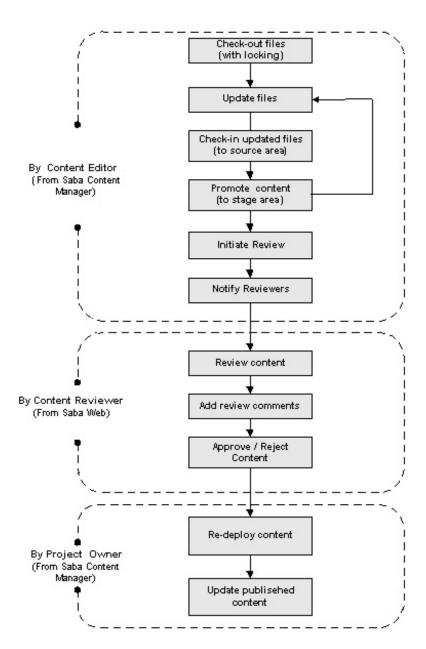


Figure 10: Tasks Involved in Updating Published Content

Content Conversion

You can convert legacy content to a web-based format with standards-compliant capabilities. This enables you to transform content of the following formats to a format optimized for delivery through an LMS:

- **Power Point**
- Word
- **PDF**
- HTML

The content asset is wrapped as a single SCO - SCORM package format. It provides the following tracking behavior:

- Report back a time/date stamp (default).
- Report back time spent (default).
- Option to require an e-signature for acknowledgement of completion.

Content Assembly

Saba Content Management provides an assembly tool for assembling and disassembling content packages. Using the Assembly tool, you can:

- Disassemble SCORM 1.2 packages into learning objects.
- Import assets and learning objects into Library.
- Assemble content objects into SCORM 1.2 packages.
- · Define package-level roll-up rules for content scoring.
- Export assembled packages to SCORM.

Metadata Search

Metadata provides information about content objects stored in the content repository, and can be used to search for content in the repository.

Content developers, catalog administrators and end users can find content using metadata.

Content can be searched by metadata in the following places.

- Production repository (by catalog administrators)
- Knowledge Base (by end users)
- Shared Resource Library (by content editors)

Saba provides a rich and extensible metadata model for tagging content. The metadata model is based on the SCORM metadata model.

Configurable Templates for Online Player

Saba provides an online player that launches content. Content in the repository is associated with a player template for runtime delivery. Player templates provide standardization and uniformity on the look and feel of content delivered through the system.

If Saba Content Management is enabled on your system, you can configure player templates. Configurable items are:

- Choice of layout, such as single frame browser or two-frame browser.
- Choice of color palette
- Choice of links to other references such as help, glossary, web site etc.

Once a player template is defined, it available to content developers for association with content. They assign or change the player template for content at any of the following stages:

- While importing content into the Production Repository or Knowledge Base.
- While promoting content from stage area to Production Repository or Knowledge Base.

You can preview player templates. Player templates can be deleted, as long as there are no current subscriptions.

Offline Player

Saba provides an offline delivery environment that allows SCORM content to be downloaded and played offline with full tracking and synchronizing capabilities. You can download and play any SCORM 1.2 packaged content using the offline player.

Tasks involved in playing content offline:

- Install offline player.
- Download offline content from Saba Learning to a local machine.
- Take content offline.
- Upload/synchronize results back to Saba Learning.

Assessment Authoring

Saba provides a web-based tool for authoring assessments. This tool is designed for creating simple tests and surveys: Using the assessment tool, you can:

- Create the following types of assessment objects:
 - Tests
 - Surveys
- Create and use templates
- Create and use question pools for reuse of questions
- · Associate competencies at the question or section level within an assessment

You can publish an assessment directly into the Production Repository. If Saba Content Management is installed, you can choose to save the assessment into the development repository, either within a project or to the Shared Resource Library. If an assessment is part of a project, you can perform all content management functions for the assessment. Hence, an assessment can undergo the cycle of review and also have source control for the assessment objects.

For More information, see the Assessment Authoring Guide.

Chapter

2

Overview of Saba Content Manager

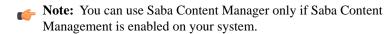
Topics:

- Installing Saba Content Manager
- Logging Into Saba Content Manager
- Understanding the Application Interface

Saba Content Manager is used for the development and management of content. It is a client tool that must be downloaded and installed on your local machine.

The following content roles use Saba Content Manager:

- · Content administrators
- · Project owners
- Content editors



You can download Saba Content Manager from within Saba Content Administration and install it on your local machine.

For instructions about how to install Saba Content Manager, see the Installing Saba Content Management document.

Logging Into Saba Content Manager

To login to Saba Content Manager, you must have any one of the following roles assigned to you:

- Content Manager Admin
- · Content Manager User

When you start Saba Content Manager, the login window is displayed.

To log in to Saba Content Manager:

- 1. Double click on the Saba Content Manager icon on your desktop. The Login screen is displayed.
- **2.** Enter the following information:
 - Saba username
 - · Password for username
- **3.** From the drop-down list, select the site you wish to access.
- **4.** Select the locale with which you wish to log in.
- 5. Click OK.

Once you log in, you can perform all tasks associated with your role.

Exiting Saba Content Manager

Saba recommends exiting Saba Content Manager when it is not in use. To exit, select Exit from the File menu.



Note: If you leave Saba Content Manager inactive, you will be logged out of the system once you exceed the time-out period set in your system. To access the system again, you must restart Saba Content Manager and log in again.

Saba Content Manager Time-out

You can configure the time-out value for Saba Content Manager. The default time-out value is set to zero, meaning it does not time out. You can set the time-out value in multiples of thirty minutes. For example, if you set the time-out value to sixty minutes, then Saba Content Manager will time out after sixty minutes of inactivity.

The maximum time-out value you can set is six hundred minutes.

To set the time-out value:

- 1. Login to Saba Content Manager.
- 2. Click on **Tools** menu and click **Options**. This displays the **Options** screen.
- 3. Click on General tab and specify the Client Timeout value in multiples of thirty minutes.
- 4. Click OK.

Configuring Saba Content Manager to Use a Proxy Server

If the connection between Saba Content Manager machine and the Saba application uses a proxy server, then you need to configure Saba Content Manager to point to the proxy server.

To configure Saba Content Manager to use a proxy server:

1. Double click on the Saba Content Manager icon on your desktop. The **Login** screen is displayed.

- 2. After entering your username and password, click **Options**.
- 3. Select Use proxy server check box.
- 4. Enter the proxy server URL (IP address or name) and proxy port number. Use : (colon) as a separator between the two. For example, http://10.70.10.8:3128.
 - Note: You must enter this field if you select the Use proxy server check box.
- **5.** If proxy authentication is required, enter the proxy **Username** and **Password**.
 - Note: If you specify a username, then you must specify its password.
- 6. Click OK.

Once you have logged into Saba Content Manager, you may modify the proxy settings as follows:

- 1. Click **Tools** > **Options** or press <ctrl> F1. The **Options** screen is displayed.
- 2. Click Setting tab.
- 3. Select Use proxy server check box.
- 4. Enter the proxy server URL (IP address or name) and proxy port number. Use : (colon) as a separator between the two. For example, http://10.70.10.8:3128.
 - Note:

You must enter this field if you select the Use proxy server check box.

- 5. If proxy authentication is required, enter the proxy **Username** and **Password**.
- 6. Click OK.

Understanding the Application Interface

Once you logon to Saba Content Manager, a screen similar to the one below is displayed. It consists of four panes:

- Project Explorer Pane
- Project View Pane
- Publish and Subscribe Repositories Pane
- Command Pane

Figure 11: Saba Content Manager Application Interface

The background of Saba Content Manager is directly impacted by Microsoft Windows color scheme that is currently in use. With the exception of the Project Explorer pane, the appearance of all panes in Saba Content Manager change when you change the color scheme on your machine, using the control panel.

You can control the look and feel of the application interface. For more information, see *Saba Content Manager and Section 508 Compliance*.

Project Explorer Pane

The Project Explorer pane displays the projects in development. For each project, it contains an hierarchical structure of folders and files.

In this pane, you can perform the following tasks, after selecting a project or folder:

- Create new folder
- Edit project
- · Rename folders
- Get the latest files for this project or folder
- Delete selected project or folder (if it is empty)
- Refresh the project explorer view

You can control the number of projects that are displayed in the Project Explorer pane. By default, the maximum number of projects that are displayed in the Project Explorer pane is set to five. You can change this value by clicking **Tools** > **Options** > **General** and entering the number of projects to be displayed in the **Project Count** field. For example, if you change the **Project Count** to seven, then seven projects are displayed in the project explorer pane.

You can choose the projects that are displayed in the Project Explorer pane. This enables you to close projects that you do not used currently and display only the ones that you need. To close a project that is not in use currently, select the project in the Project Explorer pane, right click on it and click **Close**.

You can view all existing projects and choose the projects that you want to display in the Project Explorer pane. To add a project in the project explorer pane:

- 1. Click on Project menu and click List. The Add to Project Explorer screen is displayed, listing all existing projects.
- 2. Select the project to be added to Project Explorer pane.

Note: You can select multiple projects.

3. Click Add.

Once the maximum number of projects that can be displayed in the Project Explorer pane is reached, you cannot add any more projects in the project explorer pane. An error message is displayed. You would have to close some open projects, before adding the required project in the Project Explorer pane.

You can refresh the Project Explorer pane after selecting a project or folder within it, using any of the following options:

- Clicking the **Refresh** icon
- Pressing the F5 key
- Right click on a project or folder and select **Refresh**

Project View Pane

The project pane displays the details of a project. It contains two tabs:

- Project Home
- Project Files

Project Home

This is the dashboard view of a project. The project home displays the following information:

- Project Details:
 - Your name and your role in the project
 - The date of creation of the project and the age of the project.
 - Brief description and deliverables for this project.

The project description identifies the purpose and objectives of the project. Project deliverables identify the specific deliverables planned for the project. The data is defined by the project owner and serves as a vehicle for communicating project requirements to team members.

- Team members of a project:
 - Project owners
 - · Project editors
 - Content reviewers
 - Content contributors
- Content files in review
- Project status
 - content in development
 - staged content not yet reviewed
 - staged content under review
 - staged content reviewed and rejected
 - staged content reviewed and approved
 - content published to the Production
 - content published to the Knowledge Base

The Project Files screen displays the content files in the selected project or folder. There are two tabs within it:

Find: Use this tab to search for a specific content file in a selected folder.

Filter: Use this tab to filter the content files by:

- Development
- Stage
- Production

Publish and Subscribe Repositories Pane

This pane displays a view of:

- Production
- Knowledge Base
- Library

Production and Knowledge Base contain published content. Here, you can maintain the repositories by defining new folders, renaming existing folders, or deleting empty folders.

Within a folder, you can:

- Add a sub-folder
- · Rename a folder
- Delete a folder that does not contain content
- Search for a content file

The content in the Production Repository and Knowledge Base are available for subscription by learning offering, and for consumption by learners, depending on the state of the content. For details about content states, see *Content States* on page 168.

For a content file, you can:

- Add or edit content metadata, provided the content is not in purged state.
- View content details, and current subscriptions for the content.
- Move the content to another folder, provided the content is not in purged state.
- Delete a content file.

The Library contains content files that can be re-used. It is pre-defined with a top-level taxonomy that subdivides it into the following partitions:

- Assets
- Authoring Templates
- · Learning Objects
- · Question Pool
- Assessments

In each of these folders, you can:

- Add sub-folders
- Import files, SCORM objects, templates or URL pointing to external resources.

For a selected content file in the Library, you can:

- Copy the file to the current project
- Delete the content file
- Check-in and check-out the file
- · View details and metadata

- Associate metadata including competencies
- Display versions of the file

You can refresh this pane, based on the selection, using any of the following options:

- Clicking the Refresh icon
- Pressing the F5 key

The production repository, Knowledge Base and Library are filtered based on your domain. You can only view those folders and content inventories in the Production Repository and Knowledge Base for which you have view privileges in their respective domains. Shared content in the Library is filtered based on the domains in which you have view privileges, although all folders in the library are displayed.

Command Pane

This pane displays all the commands executed and output of each command, once you have logged in to Saba Content Manager. Use this pane to view errors that may occur while performing tasks.

The display of the Command pane is controlled by the **Output** option in **View** menu. It acts as a toggle switch that can we switched on or off. You can display or close the Command pane by clicking on View menu and selecting Output.

Saba Content Manager and Section 508 Compliance

Section 508 of the Rehabilitation Act of 1973 requires federal agencies to make their electronic information and technology accessible to people with disabilities. The intent of the regulation is to ensure that people with disabilities have comparable access to electronic information and technology as people without disabilities. Saba Content Manager can be configured for section 508 compliance.

To make Saba Content Manager 508 compliant, do the following:

- 1. Click Tools > Options or press <ctrl> F1. The Options screen is displayed.
- 2. Click Appearance tab.
- **3.** For section 508 compliance, select the following:
 - Toolbar text in Library toolbar

Display text along with the icons, in the toolbar of the publish and subscribe repositories pane.

Toolbar text in Application toolbar

Display text along with the icons, in the toolbar of the application pane.

Error dialog for failed activity in multi-file operation

Displays an error message for every failed operation in a multi-file operation. For single file operations that fail, error messages are always displayed on the screen.

Confirm dialog for completed activity

Display a confirmation when an operation is completed.

- For single file operations that succeed, a confirmation message is displayed.
- For single file operations that fail, and error message is displayed. No confirmation message is displayed as the error indicates that the operation is complete.
- For multi-file operations in which all operation succeed, the confirmation message is displayed at the end.
- For multi-file operations in which some or all operations fail, an error message is displayed for each failed operation and a confirmation message at the end.



The changes take effect as soon as you save the changes.

4. To change the font of the application interface:

- Click on **Font Name** drop down and select the desired font.
- Enter the desired Font Size.
 - Note: You need to restart Saba Content Manager for the font changes to take effect.

5. Click OK.

Saba Content Manager Short Keys

Short keys provide an easier and usually quicker way of navigating and executing commands in Saba Content Manager. You can quickly accomplish tasks you perform frequently using short keys.

The following is a list of short keys that are used in Saba Content Manager

Note: Keys in parenthesis should to be pressed simultaneously. For example, (ALT + F) + U implies that you should press ALT + F simultaneously, release both keys, and then press U.:

Table 2: Saba Content Manager Short Keys

Menu	Short Keys	Description
File Menu	(Alt + F)	File menu
	(Alt + F) + O	Check out
	(Alt + F) + I	Check in
	(Alt + F) + K	Undo check out
	(Alt + F) + G	Get local copy
	(Ctrl + G)	Get local copy
	(Alt + F) + U	Update
	(Ctrl + U)	Update
	(Alt + F) + V	Version
	(Ctrl + Shift + V)	Version
	(Alt + F) + L	Copy to library
	(Alt + F) + S	Search library
	F3	Search library
	(Alt + F) + N	New Folder
	(Ctrl + N)	New folder
	(Alt + F) + I	Preview

Menu	Short Keys	Description
	(Alt + F) + T	Set release label
	(Alt + F) + B	Get files by release label
	(Alt + F) + R	Remove release label
	(Alt + F) + P	Promote to stage
	(Ctrl + C)	Сору
	(Ctrl + V)	Paste
	(Alt + F) + D	Delete
	(Shift + Del)	Delete
	(Alt + F4)	Exit
Import Menu	(Alt + I)	Import menu
	(Alt + I) + P	Import to project sub menu
	(Alt + I) + P + O	Import learning object to project
	(Alt + I) + P + F	Import source file to project
	(Alt + I) + P + D	Import folder to project
	(Alt + I) + L	Import to library sub menu
	(Alt + I) + L + F	Import file to library
	(Alt + I) + L + S	Import SCORM object to library
	(Alt + I) + L + T	Import template to library
	(Alt + I) + L + U	Import URL to library
View Menu	(Alt + V)	View menu
	(Alt + V) + L	Show library toggle
	(Alt +V) + O	Show output console toggle
	(Alt + V) + E	Focus on project explorer

Menu	Short Keys	Description
	(Ctrl + E)	Focus on project explorer
	F5	Refresh
	(Alt + V) + 1	Project view
	(Alt + V) + 2	Library
Project Menu	(Alt + P)	Project menu
	(Alt + P) + N	New sub menu
	(Alt + P) + N + B	Create blank project
	(Alt + P) + N + F	Create project from template
	(Alt + P) + P	Edit project
	(Alt + P) + D	Delete project
	(Alt + P) + C	Close project
	(Alt + P) + L	List project
	(Alt + P) + T	Template sub menu
	(Alt + P) + T + N	New template
	(Alt + P) + T + T	Edit template
Workflow Menu	(Alt + W)	Workflow menu
	(Alt + W) + S	Submit for review
	(Alt + W) + R	Check review status
	(Alt + W) + P	Publish content submenu
	(Alt + W) + P + P	Publish to production repository
	(Alt + W) + P + K	Publish to Knowledge Base
Package Menu	(Alt + K)	Package menu
	(Alt + K) + N	New package

Menu	Short Keys	Description
	(Alt + K) + O	Open package
	(Alt + K) + C	Copy package
	(Alt + K) + D	Delete package
Tools Menu	(Alt + T)	Tools menu
	(Alt + T) + O	Display Options
Help Menu	(Alt + H)	Help menu
	(Alt + H) + S	Saba Content Manager help
	(Alt + H) + A	About Saba Content Manager
Repository Pane	(Ctrl + N)	New folder
	(Shift + Del)	Delete
	F5	Refresh
	F3	Search

The following is a list of short keys that are used in the Content Assembly Tool:

Table 3: Content Assembly Tool Short Keys

Menu	Short Keys	Description
File Menu	(Alt + F)	File menu
	(Alt + F) + N	New sub menu
	(Alt + F) + N + I	Item sub menu
	(Alt + F) + N + I + B	Browse project or library
	(Alt + F) + N + I + S	Search library
	(Alt + F) + N + C	New section
	(Alt + F) + S	Save package
	(Alt + F) + A	Save and exit

Menu	Short Keys	Description
	(Alt + F) + E	Exit
	(Ctrl + S)	Save
	(Alt + F4)	Exit
	(Ctrl + Shift + S)	New section
	(Ctrl + Shift + B)	Browse project or library
	(Ctrl + Shift + L)	Search library
Edit Menu	(Alt + E)	Edit menu
	(Alt + E) + U	Undo
	(Alt + E) + R	Redo
	(Alt + E) + D	Delete
	(Alt + E) + C	Cut
	(Alt + E) + P	Paste
	(Ctrl + Z)	Undo
	(Ctrl + Y)	Redo
	(Shift + Del)	Delete
	(Ctrl + X)	Cut
	(Ctrl + V)	Paste
Publish Menu	(Alt + P)	Publish menu
	(Alt + P) + R	Preview package
	(Alt + P) + U	Publish package
	(Ctrl + Shift + I)	Preview package
	(Ctrl + Shift + P)	Publish package
Help Menu	(Alt + H)	Help menu

Menu	Short Keys	Description	
	(Alt + H) + C	Course Assembly Tool Help	
	F1	Course Assembly Tool Help	
People Search Screen	F5	Refresh	
	F3	Search	

Part

II

Saba Content Manager

Topics:

- Content Administrators and Content Development
- Managing Projects
- Publishing Content
- Managing the Library
- Role of the Content Editor
- Working With Content
- Content Assembly

Chapter

3

Content Administrators and Content Development

Topics:

- Functions in Saba Enterprise
- Functions in Saba Content Manager

This chapter covers the role of content administrators in the development of content. Content administrators perform functions both in Saba Enterprise and in Saba Content Manager client.

In content management and development, content administrators act as super users and can perform most functions performed by project owners and content editors. In addition, there are some specific functions that are performed only by content administrators.

In Saba Enterprise, content administrators can do the following:

- Define Content Teams
- Define Custom Metadata

Define Content Teams

Content administrators define content development teams. From this content team, project owners select team members for various content roles in a project. This ensures that project owners do not have to search for team members across their organization; their search is limited to the set of users defined in the content team.

To define content teams:

- 1. Select **Content Administration** from the drop-down box in the application toolbar.
- **2.** Click **Configuration** in the navigation bar.
- **3.** Click **LCMS Setup > Content Teams** in the left-hand sidebar. The **Content Teams** page is displayed. From this page, you can add or delete content team members and content contributors.
- **4.** To add content team members:
 - a. Click Add Team Member link. The people search pop-up page is displayed.
 - b. Enter the appropriate search criteria and click **Search** to display all people meeting the specified search criteria.
 - c. For each person that you want to add to the content team, select the check box next to the name.
 - **d.** Click **Select**. The selected people are listed in the **Content Teams** page as team members.
- 5. To delete a content team member, click the delete icon for the team member.
- **6.** To add content contributors:
 - a. Click Add Content Contributor link. The people search pop-up page is displayed.
 - b. Enter the appropriate search criteria and click **Search** to display all people meeting the specified search criteria.
 - c. For each person that you want to add as a content contributor, select the check box next to the name.
 - **d.** Click **Select**. The selected people are listed in the **Content Teams** page as content contributors.
- **7.** To delete a content contributor, click the delete icon for the content contributor.

Define Custom Metadata

Saba Content Management helps you to capture, store and search metadata associated with content stored in the repository. You, as content administrators, can customize some metadata. Content developers associate these metadata with content.

To define content metadata:

- 1. Select Content Administration from the drop-down box in the application toolbar.
- 2. Click **Configuration** in the navigation bar.
- Click LCMS Setup > Custom Metadata in the left-hand sidebar. The Custom Column Metadata Configuration
 page is displayed.
- **4.** Select the **Content Type** from the drop-down list.
- **5.** You can define a maximum of ten custom metadata for the selected content type. To define the custom metadata, enter its label. For each custom metadata, you can define the following two attributes:
 - **Required**: Select this attribute if content developers *must* specify this metadata.
 - Visible: Select this attribute if you want content developers to see this metadata.
- 6. Click Save.

Functions in Saba Content Manager

As a content administrator, you can perform all functions in Saba Content Manager. However, with content teams that have well defined roles for the development of content, you typically perform the following specific functions in Saba Content Manager.

- Project Templates
- Creating a Project
- Creating a Project from a Template
- Editing a Project
- Deleting a Project
- Defining Project Teams
- Defining Project Structure

Project Templates

A project template defines the basic structure and properties of a project. Once a project template is defined, you can create new projects using this template. The newly created project inherits the structure and properties defined in the project template.

For example, if you have the same content team for multiple projects, you can define a project template comprising of these team members, and then use this template every time you create a new project. Hence, the task of defining team members every time you create a new project is minimized.

You can define the following in a project template:

Project Details

Include the name of the template, description of the project and project deliverables.

Project Team

Define the team structure. You can define project owners, project editors, reviewers and content contributors for a project. Define the project team in the template, if the same team works on multiple projects.

Project Modules

The top level structure within a project are called modules. You can define the important modules within a project. Use this if you have a consistent project structure across multiple projects.

Attachments

Use this to include attachments that are common across projects.



Note: For a project template, defining the team and modules are optional.

For more information, see:

- Creating a Project Template
- Editing a Project Template
- Deleting a Project Template

Creating a Project Template

To create a project template:

- 1. Click **Project** menu and select **Template** from the drop-down.
- 2. Click New. This displays the New Project Template screen.
- 3. Define the project template properties by entering the following fields:
 - **Template Name**

You must enter this field.

Description

This is an optional field.

· Project Deliverable

This is an optional field.

4. Define the content team as follows:

- a. Click Team tab.
- **b.** Click **Add**. This displays the **Select People** pop-up window.
- c. Select Owners, Editors and Reviewers from the content team list and select content contributors from the list of content contributors. If you do not find the required user listed in the content team or content contributor list, you can search for them using the **Search** option and then assign then as an owner, editor, reviewer or content contributor.
- d. Click OK.
- **5.** Define project structure as follows:
 - a. Click Modules tab.
 - **b.** Click **New Module**. Enter the name of the module.
 - c. Repeat step b) to add multiple modules.
- 6. Click Save.

This creates a project template. To create a project using a project template, refer to Creating a Project from a Template.

Editing a Project Template

To edit a project template:

- 1. Click **Projects** menu and select **Template** from the drop-down.
- 2. Click Edit. This displays the Select a Template screen.
- **3.** Select the template to be edited.
- 4. Click **OK**. This displays the **Edit Project Template** screen.
- **5.** Modify the template.
- 6. Click Save.

Deleting a Project Template

To delete a project template:

- 1. Click **Projects** menu and select **Template** from the drop-down.
- 2. Click Edit. This displays the Select a Template screen.
- **3.** Select the template to be deleted.
- 4. Click Delete.

Creating a Project

A project is a work area that contains content in development. A team of content developers develop the content. Projects contain folders and sub-folders for organizing content.

To create a project:

- 1. Click **Projects** menu and select **New** from the drop-down.
- 2. Click Blank Project. This displays the New Project Detail screen.
- **3.** Enter project details as follows:
 - Project Name

You must enter this field.

Start Date

This field displays today's date by default.

End Date

This field is populated by default with a date, a month later from today. You can change it to any date on or after the Start Date.

Description

This is an optional field.

Project Deliverables

This is an optional field.

4. To add team members:

- a. Click Team tab
- **b.** Click **Add**. This displays the **Select People** pop-up window.
- c. Select Owners, Editors and Reviewers from the content team list and select content contributors from the list of content contributors. If you do not find the required user listed in the content team or content contributor list, you can search for them using the Search option and assign then as an owner, editor, reviewer or contributor.
- d. Click OK.
- **5.** Define project structure as follows:
 - a. Click Modules tab.
 - **b.** Click **New Module**. Enter the name of the module.
 - c. Repeat step b) to add multiple modules.

6. Click Save.

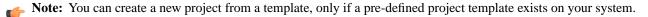
The new project is displayed in the **Project Explorer** pane, along with the other projects in development.

Creating a Project from a Template

You can create a project from a pre-defined template. The new project created from the template inherits all the characteristics defined in the template.

For example, if you have the same project structure for multiple projects, you can define a project template with this structure, and then use this template every time you create a new project. Then you do not to need to define the project structure each time you create a new project.

While creating a project, you can modify the characteristics inherited from the project template. In the above example, if the new project you are creating has one more module in addition to that specified in the template, you can add the new module in the project.



To create a project from a template:

- 1. Click **Projects** menu and select **New** from the drop-down.
- 2. Click From Template. This displays the New Project from Template pop-up screen.
- 3. Select a template of your choice and click **OK**. This displays the **New Project Detail** screen. All fields defined in the template are pre-populated.
- **4.** Enter the new project name.
- 5. Modify any inherited field values that you wish to change.
- **6.** Enter field values for any additional fields (if required).
- 7. Click Save.

This creates a new project. This project is displayed in the **Project Explorer** pane.

You can edit an existing project. There are various reasons why you want to do so. For example, during the content development phase of a project, you may decide to extend the **End Date** of a project.

To edit a project:

- 1. In the Project Explorer pane, select the project.
- 2. Click **Projects** menu and click **Edit Project** from the drop-down.

or

In the **Project Explorer** pane, right click on the selected project and click **Edit Project** from the pop-up. This displays the **Edit Project Detail** screen.

- 3. Edit the required fields.
- 4. Click Save.

Deleting a Project

You can delete a project that does *not* contain any content files in development. If project modules or folders contain content files, then you must delete these content files before you delete the project.

To delete a project:

- 1. In the **Project Explorer** pane, select the project.
- 2. Click **Projects** menu and click **Delete** from the drop-down.

or

In the **Project Explorer** pane, right click on the selected project and click **Delete** from the pop-up.

3. Click Save.

Defining Project Teams

The project team comprises of the following roles that interact with the system during the development of content:

Project Owner

A project owner manages a project during the content development phase.

Content Editors

A content editor authors and edits content during the content development phase.

Content Reviewers

A content reviewer reviews the content authored by content editors and provides feedback.

• Content Contributors

A content contributor is usually a SME, who has extensive knowledge about the content, and can contribute to the development of the content.

You can define the project team either during the creation of a project, or after a project is created.

For more information, see:

- Assigning Team Members to a Project on page 54
- Deleting Team Members from a Project on page 55

Assigning Team Members to a Project

For a content project, you can assign project owners, editors, reviewers, and content contributors. When a content role is assigned to a user, the user receives a notification containing details of the project and their role in the project.

To assign team members (project owners, editors, reviewers, and content contributors):

- **1.** For a new project:
 - a. Click **Projects** menu and select **New** from the drop-down.
 - b. Click Blank Project. This displays the New Project Detail screen.

or

For an existing project:

- a. In the **Project Explorer** pane, select the project.
- b. Click Projects menu and click Edit from the drop-down. This displays the Edit Project Detail screen.
- 2. Click Team tab.
- 3. Click **Edit**. This displays the **Search People** screen.
- 4. From the content team list, select the required user(s) and click the --> button to assign as owners, editors or reviewers.

Similarly, from the list of content contributors, select and assign users as content contributors.

Note: You can assign multiple project owners, editors, reviewers, and content contributors for a project.

- 5. If the content team does not list a particular user, then you can find and assign the person as follows:
 - a. Click Search button.
 - **b.** The **Search People** screen is displayed. Enter the search criteria and click **Search**.
 - c. In the Search Results, select the appropriate person, right click and assign a role by clicking either one of the following:
 - Assign as Owner
 - Assign as Editor
 - Assign as Reviewer
 - Assign as Contributor
 - d. Click Close.
- 6. Click OK.
- 7. Click Save.

Deleting Team Members from a Project

During the lifetime of a project, you may need to modify the content team. You may do so by assigning or deleting content developers from a project.

To delete content developers from a project:

- 1. In the **Project Explorer** pane, select the project.
- 2. Click **Projects** menu and click **Edit** from the drop-down.

Right click on the selected project and click Edit.

The **Edit Project Details** screen is displayed.

- 3. Click **Team** tab.
- 4. Select the team member you want to delete. Press delete. This deletes the selected team member from the project team.
- 5. Click Save.

Projects contain folders and sub-folders for organizing content. The top level folders within a project are called modules. Each module comprises of folders within it, which can in-turn contain sub-folders. Content is stored to the modules and folders within a project.

Note: To import content, a project must contain at least one module. You cannot import content into the root folder of a project.

Managing Project Modules

Project modules define the top folder structure of a project. Every project must contain at least one module. Content is organized within the modules and folders in a project.

You can manage modules within a project. For more information, see:

- *Creating Modules* on page 56
- Renaming Modules on page 56
- Deleting Modules on page 56

Creating Modules

To create modules:

- 1. In the Project Explorer pane, select the project.
- 2. Click Project menu and click Edit menu option.

Right click on the selected project and click Edit

The **Edit Project Details** screen is displayed.

- 3. Click Module tab.
- 4. Add modules to the project by clicking on the **New Module** button. Enter the name of the module.
- 5. Repeat step 4 to add multiple modules. All modules are added as main folders within the project.
- 6. Click Save.

In the **Project Explorer** pane, all modules for a selected project are displayed.

Renaming Modules

You can rename existing modules even if they contain folders or content files.

To rename a module within a project:

- 1. In the **Project Explorer** pane, select the project.
- 2. Click **Project** menu and click **Edit** menu option.

Right click on the selected project and click Edit

The Edit Project Details screen is displayed.

- 3. Click Modules tab. All existing project modules are displayed.
- **4.** Select the module to be renamed and press F2 key or click **Rename** button.
- 5. Modify the module name and press Enter key.
- 6. Click Save.

Deleting Modules

You can delete modules if they do *not* contain any content files or folders. You can only delete empty modules.

To delete a module:

- 1. In the **Project Explorer** pane, select the module to be deleted.
- 2. Click File menu and click Delete menu option.

or

Right click on the selected module and click **Delete**.

3. The **Delete Confirmation** pop-up window is displayed. Click **Yes** to delete the module.

The selected module is deleted.

Managing Folders within Modules

Folder hierarchy helps in organizing content. You can create multiple folders within a module. Each folder can contain multiple sub-folders. Each module, folder and sub-folder can contain content files.

For more information, see

- *Creating Folders* on page 57
- Renaming Folders on page 57
- Deleting Folders on page 57

Creating Folders

To create a folder within a module:

- 1. In the **Project Explorer** pane, select a folder.
- 2. Click File menu and click New Folder.

Right click on the selected module or folder and click **New Folder** from the pop-up.

- 3. In the **New Folder** pop-up window, enter the name of the folder.
- 4. Click OK.
- **5.** Repeat steps 1 to 4 to create multiple folders.

Renaming Folders

You can rename a folder, even if it contains folders or content files within it.

To rename a folder:

- 1. In the **Project Explorer** pane, select the folder to be renamed.
- 2. Right click on the selected folder and click **Rename Folder** from the pop-up.
- 3. In the **Rename Folder** pop-up window, enter the name of the folder.
- 4. Click OK.

Deleting Folders

You can delete a folder that is empty. Folders that contain sub-folders or content files within it cannot be deleted.

To delete a folder:

- 1. In the **Project Explorer** pane, select the folder to be deleted.
- 2. Right click on the selected folder and click **Delete** from the pop-up.
- 3. The **Delete Confirmation** pop-up window is displayed. Click **Yes** to delete the folder.

The selected folder is deleted.

Chapter

4

Managing Projects

Topics:

Viewing Project Details

Project owners manage content development projects that they are assigned. They define the project structure, assign users to roles within a project, publish content and deploy content on content servers.

Project owners perform specific functions during the initial phase and final phase of content development life cycle.

For information about the role of project owners during the initial phase of content development, refer to *Phase Two: Project Definition* on page 24.

For information about the role of project owners in publishing content, refer to *Phase Five: Publish Content* on page 28.

Viewing Project Details

You can view information about content development projects. The project dashboard gives a snapshot view of the whole project.

For details about information displayed on the project dashboard, refer to *Project Home* on page 37. To view the project dashboard, select the project in the **Project Explorer** pane.

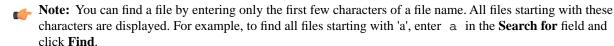
To view the content files within a module or sub-folder:

- 1. In the **Project Explorer** pane, select the module or sub-folder.
- 2. In the Project pane, click on **Project Files** tab. This displays the content files in the selected module or sub-folder.

Finding a Content File

To find a content file within a folder:

- 1. In the **Project Explorer** pane, select module or sub-folder.
- 2. In the Project pane, click on Project Files tab.
- 3. Click on Find tab.
- 4. In the Search for field, enter the file name and click Find.



Finding Content Files Using Filters

For a selected folder within a project, you can find content in any of the following states of content development:

- Content in development
- · Content in Stage area
- Published content

In folders containing a large number of files, this enables you to filter content files and display only content in a selected state.

For more information, see

- Finding Content in Development
- Finding Content in Stage Area
- Finding Content in Production

Finding Content in Development

For a selected folder in a project, you can view content files in development. These files reside in the source area of the content repository.

To find content files in development:

- 1. In the **Project Explorer** pane, select a module or sub-folder.
- 2. In the **Project** pane, click on **Project Files** tab.
- 3. Click on Filter tab.
- 4. Select Content Under Development check-box.

This displays content files in Development state.

Finding Content in Stage Area

For a selected folder in a project, you can view content files that reside in the stage area of the content repository.

To find content files in stage area of project:

- 1. In the **Project Explorer** pane, select a module or sub-folder.
- 2. In the **Project** pane, click on **Project Files** tab.
- 3. Click on **Filter** tab.
- 4. Select Content in Staging Area check-box.

This displays content files in Stage area.

Finding Content in Production

For a selected folder in a project, you can view content files that are published. These files reside in the Production Repository.

To find content files in production:

- 1. In the **Project Explorer** pane, select a module or sub-folder.
- 2. In the **Project** pane, click on **Project Files** tab.
- 3. Click on Filter tab.
- 4. Select Content in Production check-box.

This displays content files that are published.

Project Attachments

Project attachments are files that are associated with a project, but do not go through the content development life cycle. You do not perform any source control activities on these files. Examples of project attachments are content templates that are used by team members for the development of content.

Adding Project Attachments

To add a project attachment:

- 1. In the Project Explorer pane, select a project.
- 2. Select **Project** menu and click **Edit**. This displays the **Edit Project Details** screen.
- 3. Click on Attachments tab.
- 4. Click Add.
- 5. Select the attachment from your local disk or network and click open. This adds the selected attachment to the list of attachments in the project.
- 6. Click Save.

Deleting Project Attachments

You can delete attachments at any point in the life cycle of content development.

To delete a project attachment:

- 1. In the **Project Explorer** pane, select a project.
- 2. Select Project menu and click Edit. This displays the Edit Project Details screen.
- 3. Click on Attachments tab. All existing attachments for the project are displayed.
- **4.** Select the attachment to be deleted and click **Delete**.
- 5. Click Save.

Chapter

5

Publishing Content

Topics:

- Checking Review Status
- Publishing Content

The final phase of the content development life cycle is publishing content. You can publish content residing in the stage area of the content repository. Content ready for consumption is published.

For information about the tasks involved in publishing content, refer to *Phase Five: Publish Content* on page 28.

You can publish content in the stage area, even if it has not undergone the cycle of review. For detailed information about the various processes in publishing content, see *Publishing Content*.

As part of your content development process, if you implement the cycle of review, then you would consider review feedback before publishing content. For information about review status, see *Checking Review Status* on page 64.

Once content is developed and ready for consumption, it can be reviewed by content reviewers. For review, content must be in the stage area. The content editor or the project owner sends the content for review. Once content is submitted for review, a notification with an embedded link is sent to the reviewer.

The tasks involved in checking review status is depicted in the diagram below.

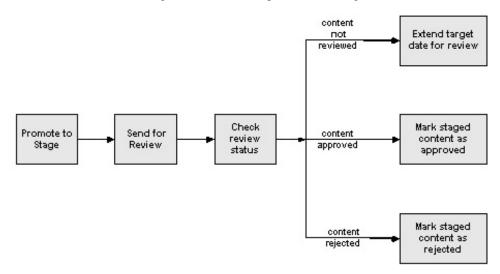


Figure 12: Tasks Involved in Checking Review Status

For information about the different review statuses, see *Review Status* on page 64.

On checking the review status, you can do the following:

- Approving Content
- Rejecting Content on page 66
- Changing the Review Date on page 66

Review Status

Content in the stage area can undergo the cycle of review. All content in the stage area have a review status associated with it. The table below lists the different review statuses and the action to be performed for content to acquire the specified review status:

Table 4: Review status

Review Status	Action
Not Reviewed	On promoting content to stage area
In Progress	On submitting content for review
Approved	On project owner approving content
Rejected	On project owner rejecting content

Approving Content

As the owner of the project, you make the final decision to approve or reject content. You can override the decision of individual reviewers and approve content. You can approve content only if has been submitted for review, after which, the review status of the content changes to In Progress.

To approve content:

- 1. Within a project, select the module or folder that contains the content.
- 2. In the **Project View** pane, click on **Project Files** tab. This displays the content files.
- 3. Select the content to be approved.
 - **Note:** To approve content, its review status *must* be **In Progress**.
- 4. Right click on it and select Check Review Status.

or

Click on Workflow menu and click Check Review Status.

- 5. This displays the Review Status screen. To view the feedback from all reviewers before approving or rejecting content, see Viewing Review Details on page 65.
- **6.** Click on **Approve** radio button.
- 7. Click OK.

Once content is approved, the **Review marked approved** notification is sent to the content editor. For content that goes through the cycle of review, you can publish it, once it is approved.

Viewing Review Details

After the content editor promotes content to the stage area, it is sent for review to one or more reviewers. After reviewing the content, the reviewers approve or reject the content and enter review comments. You can view the review details of individual reviewers. This helps you to make the decision to approve or reject content.

Note: For a content file, only the project owner and review initiator can view the review comments.

To view review details of content:

- 1. In the **Project View** pane, select content.
 - Note: To view review details, the content must be in the stage area and its review status must be In Progress, Approved or Rejected.
- 2. Right click on it and select Check Review Status.

or

Click on Workflow menu and click Check Review Status.

This displays the **Review Status** screen.

3. Click on Reviewers tab within Current Review tab. This displays the list of reviewers. It also displays the review status and comments entered by each reviewer.

If the review status of content is In Progress, you can add additional reviewers. A notification is sent to each new reviewer about their association with the content project as a reviewer.

To add a reviewer:

- a. Click on Add Reviewers button. The Select People screen appears.
- **b.** Select the reviewers. You can select multiple reviewers.
- c. Click **OK**. The selected reviewers are added to the list of reviewers.

- 4. To view the details of review changes, click on **History** tab. It displays the following details:
 - Review start date: The date on which the selected content was sent for review.
 - Status: The review status of selected content.
 - Status Change Date: The date on which the selected content was approved or rejected.
 - · Reasons for Rejection: The reason the content was rejected.

5. Click OK.

For content that is already approved or rejected, you can only view the review comments, but cannot change its status, unless you submit it for review again.

Rejecting Content

Content that is not satisfactory is rejected. You can override the decision of individual reviewers and reject content. To reject content, the status of the content must be **In Progress**. When you reject the content, you must specify the reason for rejection. This enables the content editor to incorporate feedback and improve the content before sending it for review again.

To reject content:

- 1. Within a project, select the module or folder that contains the content.
- 2. In the Project View pane, click on Project Files tab. This displays the content files.
- 3. Select the content to be rejected.
 - Note: To reject content, its review status *must* be **In Progress**.
- 4. Right click on it and select Check Review Status.

or

Click on Workflow menu and click Check Review Status.

- **5.** This displays the **Review Status** screen. To view the feedback from all reviewers before approving or rejecting content, see *Viewing Review Details* on page 65.
- **6.** Click on **Reject** radio button in the current review status section.
- 7. In the **Reason** field, enter the reason for rejecting the content.
 - Note: While rejecting content, you *must* enter the reason for rejection.

8. Click OK.

The review status of the content changes to **Rejected**. Once content is rejected, the **Review marked rejected** notification is sent to the content editor.

Changing the Review Date

For content in review, you can alter the review date. For example, if you are near or past the review end date, and the content has not been reviewed by an important reviewer, you can extend the review date.

To alter the review date, the review status of the content must be **In Progress**.

To alter the review date of content:

- 1. Within a project, select the module or folder that contains the content.
- 2. In the **Project View** pane, click on **Project Files** tab. This displays the content files.
- 3. Select content.
 - **Note:** To change the review date, the review status of the content *must* be **In Progress**.
- 4. Right click on it and select Check Review Status.

or

Click on Workflow menu and click Check Review Status.

- 5. This displays the **Review Status** screen. The **Main** tab within **Current Review** tab displays two sections:
 - · Current Review Status section
 - · Review Details section
- **6.** In the Review Details section, modify the **Review Deadline**.
- 7. The **Instructions to Reviewers** field displays existing instructions. You can modify or add instructions here.
- 8. Click OK.

The date by which the reviewers should complete the review is changed. On changing this date, a notification is sent to the content developers, notifying them of the change.

Publishing Content

Once content is approved and ready for consumption, it can be published. Publishing content makes it available to end users, either directly through the Knowledge Base or through learning offerings that subscribe to the content. You can publish content to any of the following repositories:

- Production repository: Catalog administrators browse and search for content published to the Production Repository. Learning offerings in Saba Learning Catalog subscribe to content in the Production Repository. When content is consumed through the learning catalog, the content can be tracked and results reported back to Saba Learning Management System (LMS).
- Knowledge Base: Content published to the Knowledge Base is available for direct consumption by end users, and for consumption through learning offerings that subscribe to the content. When standards-compliant content is consumed through the learning catalog, the content can be tracked, and results reported back to the LMS. When the content is consumed directly by end users, the content cannot be tracked, and results cannot be reported back to the LMS.

Publishing Content to Production Repository

When you publish content to the Production Repository, the content is available for consumption through learning offerings. While publishing content, the content is also deployed on content servers. The content resides on the content servers and the Production Repository provides an index of content available for consumption through learning offerings.

To publish content to the Production Repository:

- 1. Within a project, select the module or folder that contains the content.
- 2. In the **Project View** pane, click on **Project Files** tab. This displays the content files.
- 3. Select content to be published.

Note: The content *must* be in the stage area of the project. Additionally, if you have sent the content for review, then its review status must be Approved.

4. Right click on it and select **Publish to Production**.

Click on Workflow menu, select Publish Content and click To Production.

- 5. This displays the **Publish to Production Repository: Select Option** screen. Select any one of the publishing options:
 - Publish as new content (with a version of 1.0 in the Production Repository)
 - Create a new version of already published content
 - Update already published content.



You cannot update published content that is in **Purged** state.

- 6. Click Next.
- 7. The **Publish to Production Repository: Content Details** screen is displayed. Enter the following details:

Table 5: Input fields for Publishing to Production Repository

Field	Description
Name	Enter a name for the content that you are publishing. It can be different from the name used during development. Note: This is a required field.
Version	Enter the version of the content that you are publishing. You can enter an explicit number. If you leave this field blank, a version of 1.0 is associated with this content. Note: This is an optional field.
Content Format	Displays the format of the content that you are publishing. Note: This is a display only field. You cannot change is field.
Location	Browse to the location within the Production Repository where you want to publish the content. Note: This is a required field.
Player Template	Select the player template. Note: This is a required field and is populated by default with the System Defined player template.
Content Provider	The name of the content vendor that provides content. Select the name of the content vendor from the drop-down list of active content providers configured for your domain.
Delivery Vendor	Choose the delivery vendor from the drop-down list. If you select Saba as the delivery vendor, then the content plays inside the Saba player. If you choose Native as the delivery vendor, the content plays in a native player (such as the Internet Explorer browser), or the content can be downloaded and played using an associated application. Note: For delivery of standards-compliant content, choose the Saba delivery vendor. Native delivery vendors do not support delivery of standards-compliant content. Note: Secure content servers do not support Native delivery vendors. Delivery vendors of type Saba CIF are not displayed in the Delivery Vendor drop-down list, although they may be defined in the Saba system, as Saba Content Manager does not support it.

Field	Description
Content Server	Select the content server from the drop-down list. The content is deployed on the selected content server. Note: This is a required field.
Expiration Date	Enter a date on which the content will expire. By default, the date is set to 1st January 3000. Note: This is an optional field.
Domain	The security domain for the content object. Select the domain from the drop-down list. Note: Users will not be allowed to use the content object unless they have permission to access the specified security domain. To make the content available to all users, choose the "world" domain.
Deployed on a Secure Server	Select this check box if the content is to be delivered in secure mode. The check box is editable for the following content formats: • AICC • Deployed SCORM • URL This information is inherited during import, and is not editable for the following content formats: • SCORM Package • IMS content Package • Directory Note: Content server information is updated to the content inventory during import. Once the content object is imported, changing this attribute will have no affect.
Use as Evaluation	Select this option if you want to use the content for evaluation. Any score that a user ac~quires using an evaluation content is not considered for measuring the user's performance.
Requires E-Signature	Select this check box if the an user needs to sign off on completing the content. The esignature audits the action of content completion by a user. Note: This check box is available for all content formats, except AICC and SCORM 2004 content formats.
Available Offline	Select this check box if the content must be made available for offline consumption. Note: This check box is applicable for SCORM 1.2 packages.

8. Click Finish.

Once content is published to the production repository, learning offerings can subscribe to the content, and users can consume the content by registering for the learning offering.

Publishing Content to Knowledge Base

Content published to the Knowledge Base is available for direct consumption by end users, and for consumption through learning offerings that subscribe to the content. When content is consumed through the learning catalog, the content can be tracked, and results reported back to the LMS. When the content is consumed directly by end users, the content cannot be tracked, and results cannot be reported back to the LMS.

To publish content to the Knowledge Base:

- 1. Within a project, select the module or folder that contains the content.
- 2. In the **Project View** pane, click on **Project Files** tab. This displays the content files.
- 3. Select content to be published.
 - **Note:** The content *must* be in the stage area of the project. If you have sent the content for review, then its review status must be **Approved**.
- Right click on it and select Publish to Knowledge Base.

or

Click on Workflow menu, select Publish Content and click To Knowledge Base.

- 5. This displays the **Publish to Knowledge Base: Select Option** screen. Select any one of the publishing options:
 - Publish as new content (with a version of 1.0 in the Production Repository)
 - · Create a new version of already published content
 - Update already published content.



You cannot update published content that is in **Purged** state.

- 6. Click Next.
- 7. The Publish to Knowledge Base: Content Details screen is displayed. Enter the following details:

Table 6: Input fields for Publishing to Knowledge Base

Field	Description
Name	Enter a name for the content that you are publishing. It can be different from the name used during development. Note: This is a required field.
Version	Enter the version of the content that you are publishing. You can enter an explicit number. If you leave this field blank, a version of 1.0 is associated with this content. Note: This is an optional field.
Content Format	Displays the format of the content that you are publishing. Note: This is a display only field. You cannot change is field.
Location	Browse to the location within the Knowledge Base where you want to publish the content. Note: This is a required field.
Player Template	Select the player template. Note: This is a required field and is populated by default with the System Defined player template.
Content Provider	The name of the content vendor that provides content. Select the name of the content vendor from the drop-down list of active content providers configured for your domain.
Delivery Vendor	Choose the delivery vendor from the drop-down list. If you select Saba as the delivery vendor, then the content plays inside the Saba player. If you choose Native as the delivery vendor, the content plays in a native player (such as the Internet Explorer browser), or the content can be downloaded and played using an associated application. Note: Secure content servers do not support Native delivery vendors. Delivery vendors of type Saba CIF are not displayed in the Delivery Vendor drop-down list, although they may be defined in the Saba system, as Saba Content Manager does not support it.
Content Server	Select the content server from the drop-down. The content will be deployed on the selected content server. Note: This is a required field.
Expiration Date	Enter a date on which the content will expire. By default, the date is set to 1st January 3000. Note: This is an optional field.

Field	Description
Domain	The security domain for the content object. Select the domain from the drop-down list. Note: Users will not be allowed to use the content object unless they have permission to access the specified security domain. To make the content available to all users, choose the "world" domain.
Deployed on a Secure Server	Select this check box if the content is to be delivered in secure mode. The check box is editable for the following content formats: • AICC • Deployed SCORM • URL This information is inherited during import, and is not editable for the following content formats: • SCORM Package • IMS content Package • Directory Note: Content server information is updated to the content inventory during import. Once the content object is imported, changing this attribute will have no affect.
Use as Evaluation	Select this option if you want to use the content for evaluation. Any score that a user ac~quires using an evaluation content is not considered for measuring the user's performance.
Requires E-Signature	Select this check box if the an user needs to sign off on completing the content. The esignature audits the action of content completion by a user. Note: This check box is available for all content formats, except AICC and SCORM 2004 content formats.
Available Offline	Select this check box if the content must be made available for offline consumption. Note: This check box is applicable for SCORM 1.2 packages.
Metadata	Click on this button to specify metadata for the content. The following metadata are parsed from the content and cannot be modified: • Title • Content Format You can add (or update) the following metadata: • Description • Authors • Keywords • Language

Field	Description
	 Content Type Any custom metadate that is defined for this content type. Note: Specifying metadata while publishing content is optional.
	1 tote: Specifying inetadata winte publishing content is optional.

8. Click Finish.

Once content is published to the Knowledge Base, learning offerings can subscribe to the content, and learners can consume the content, either directly, or by registering for the learning offerings that subscribe to the content.

Chapter



Managing the Library

Topics:

- Managing Folders within Library
- Importing Content to Library
- Finding Content in Library

The Library is an area within the development repository where reusable objects such as assets, learning objects and templates are imported, shared, copied and linked to from other content projects. Objects can be imported into the Library, both from within content projects and from outside sources.

The Library is predefined with a top-level taxonomy that subdivides it into the following partitions:

- Assets
- Learning Objects
- Authoring Templates
- Player Templates
- · Question Pools

Managing Folders within Library

You can define a folder taxonomy within the predefined partitions in Library. These folders help in organizing shared objects, assets and templates within the Library.

To access the Library area, click on **Library** tab in the Publish and Subscribe Repositories pane.

For more information, see:

- Creating Folders within Library
- Renaming Folders within Library
- Deleting Folders within Library

Creating Folders within Library

You can create folders within the predefined partitions in the Library. You can create multiple sub-folders within each folder.

To create a folder within a selected folder in the Library:

- 1. Right click on the selected folder and click **New Folder** from the pop-up. The **New Folder** pop-up window is displayed.
- **2.** Enter the folder name.
- 3. Click OK.

Renaming Folders within Library

You can rename existing folders within the Library. To rename a folder:

- 1. Right click on the selected folder and click **Rename Folder** from the pop-up. The **Rename Folder** pop-up window is displayed.
- 2. Enter the new folder name.
- 3. Click OK.

Deleting Folders within Library

You can delete folders that are empty. To delete a folder:

- 1. Right click on the selected folder and click **Delete** from the pop-up. The **Delete Confirmation** pop-up window is displayed.
- 2. Click Yes.

Importing Content to Library

You can import content into the Library, both from content projects and from external sources. Once content is imported to the Library, it can be reused by other content development projects.

- Importing Content into Library from Content Projects
- Importing Content into Library from External Sources

Importing Content into Library from Content Projects

From a content development project, you can import content in any state into the Library.

To import content into the Library from a content project:

- 1. Go to the content project and select the content file that you want to import.
- 2. Click File menu and click Copy to Library.

or

Right click and click Copy to Library from the pop-up menu.

- 3. The Select Folder pop-up window is displayed. Select the Library location where you want to copy the content.
- 4. Click OK.

For SCORM packages, you can specify the learning objects (SCOs) you want to import into the Library. Once you import content into the Library, you can add (or update) its metadata. For detailed information, see Specifying Metadata for Content in Library.

Importing Content into Library from External Sources

You can import content into the Library from external sources, such as your local disk (or network) or from the web. You can import content of the following types:

- File
- SCORM Object
- Template
- URL
- · HTML sites

For detailed information, see:

- Importing File to Library on page 86
- Importing SCORM Object to Library on page 86
- Importing Templates to Library on page 87
- Importing URL to Library on page 87
- Importing HTML sites into the Library on page 87

You can add (or update) metadata for the content while importing the content into Library. For detailed information, see Specifying Metadata for Content in Library.

Specifying Metadata for Content in Library

Metadata provides information about content stored in the content repository. Using metadata, content developers can search and find content in Library.

You can specify metadata for content in the Library. For content from external sources, you can also specify metadata while importing it.

To specify metadata for content in the Library:

- 1. Navigate to the content inside the Library and select it.
- 2. Right click on the selected content and click **Details**. The **Shared Resource Details** screen is displayed.
- 3. Click Metadata. The Specify Metadata screen is displayed. Metadata already associated with the content is displayed. These metadata are parsed while importing the content into the Library. You can add (or update) the following metadata:
 - Title
 - Description
 - Language
 - Authors
 - · Keywords
- **4.** Click on **Custom** tab to add or update custom metadata.
- **5.** Click on **Competency** tab to associate competencies with selected content.

It displays the competencies already associated with the content. To add a competency:

- a. Click on Add button. The Add Competency screen is displayed.
- **b.** Select a competency from the list of competencies displayed and click **Add**.

- c. Select the **Minimum Proficiency Level** from the drop down.
- d. Click OK. A message is displayed that the competency is successfully associated. Click OK.
- e. Click Close.
- 6. Click OK.

Finding Content in Library

Saba provides a search capability to find content within the Library. Content developers can search for content using the following criteria:

Search Field	Description
Title	Name of the content object. Enter the first few characters of the content object name. The search finds all content objects that start with the string you enter.
Content Type	Content type of the content object. Select a content type from drop-down list of system-supported content types.
Language	The language in which the content is published. Enter the first few characters of the language. The search finds all content objects that start with the string you enter.
Competency	The competency associated with the content. Use the competency picker to find and select the required competency.
Author	The author of the content. Enter a string of characters contained in the keyword. The search finds all content objects that contain the string you enter.
Keywords	The keyword associated with the content. The keyword is a metadata used to classify the content. Enter a string of characters contained in the keyword. The search finds all content objects that contain the string you enter.
Folder Name	The folder within the Library where you want to search for the content. Select a folder from drop-down list of pre-defined folders.

To find content within the Library:

- 1. Select the folder where you want to search for the content.
- 2. Right click and click Search from the pop-up menu. The Search Library screen is displayed.
- 3. Enter the search criteria.
- 4. Click Search.

All content items matching the specified search criteria are displayed. From the search results, you can add content to your current project as follows:

1. Select the content file and click Add to Project

or

Right click on the selected content file and click Add to Project.

- 2. The Add from Shared Resource Library screen is displayed. Select any one of the following:
 - Create a copy of this asset
 - Link to this asset
- 3. Click OK. The Browse For Folder Select Destination screen is displayed.
- **4.** Select the destination directory and click **OK**.

Chapter

7

Role of the Content Editor

Topics:

- Local Working Directory
- Getting a Local Copy

Content editors author and edit content within projects. They perform source control activities such as check-in and check-out of files, version content, promote content from source area to stage area and initiate reviews.

Content editors author content using authoring tools of their choice. They interact with Saba Content Manager to contribute content into the system. They may also use workflow provided by Saba Content Manager to manage content through its development life-cycle.

Content editors perform the following functions:

- Author content
- · Update content
- Check-in and check-out content files
- · Assemble content
- · Version content
- Initiate reviews

For information about the role of content editors in the content development life-cycle, see *Phase Three: Content Creation* on page 25.

When you get a project or file, you can get it to any folder on your local disk or network. You can also check-out a file to any folder on your local disk or network. But, its a good practice to store all the files related to a project in location that you can easily find. You can do so, by setting the local working directory.

Setting Local Working Directory

Once the local directory is set, all content files that you check-out or get are stored within the local working directory in the same folder structure as the project from where you performed the check-out or get.

To set the local working directory:

- 1. Click on **Tools** menu and click **Options**. This displays the **Options** screen.
- 2. In the **Local Working Directory** field, enter the folder path. You can also browse and select the folder that you want to set as the local working directory.
- 3. Click OK.

If the local directory is not set, then the first time you perform a get or check-out, the system will ask you to specify the folder to which you want to get or check-out. This folder gets set as the local working directory. The next time you perform a get or check-out, the system will not ask you to specify the folder, but will take the folder that you had specified the first time, as the local working directory.

Getting a Local Copy

Getting a project copies the project from the development repository to your local disk or network. You can also get a single module, folder or content file. **Get** copies the latest version of the project or file to your working directory. Pressing the F2 key takes you directly to the selected folder in your local working directory.

Getting a Project, Module or Folder

To get a project, module or folder to your local disk or network:

- 1. In the **Project Explorer** pane, select the project, module or folder that you want to get.
- 2. Click on File menu and click Get Local Copy.

or

Right click on the selected folder and click **Get** from the drop-down.

All folders and files within the selected project, module or folder are copied to your local working directory. You can directly go to the selected folder in your local working directory from Saba Content Manager, by pressing F2 key.

Getting a Content File

To get a content file to your local disk or network:

- 1. In the Project View pane, click project files tab and select the content file you want to get.
- 2. Click on File menu and click Get Local Copy.

or

Right click on the selected folder and click **Get Local Copy** from the drop-down.

The selected file is copied to your local working directory. It maintains the same directory structure in the local working directory as in the development repository.

Chapter

8

Working With Content

Topics:

- Importing Content
- Source Control of Content
- Reusing Content
- Promoting Content to Stage Area
- Initiating Content Review
- Updating Content
- Release Labels
- Handling Files of Large Size

This chapter describes the functions performed by content editors.

Once you author content, you need to import it into the development repository using Saba Content Manager. You can import content into any one of the following areas within the development repository:

- Projects
- Library

Within projects, you can import content into the source area or the stage area. Content under development is imported into the source area of a project. Content that is consumable is imported directly into the stage area of a project.

You can import multiple files simultaneously. When you import a content into the development repository, its version is 1.0

Why Import Content?

Saba Content Manager is used for source control and workflow of content. You can author content using any authoring tool of your choice. Saba does not compel uses to flow all content through an integrated authoring environment.

As the content you author resides on your local disk or network, you must first import it into the development repository using Saba Content Manager. Once content is imported into the development repository, you can manage the content.

How to Import Content?

Content Editors interact with Saba Content Manager to contribute content into the system. For information about importing content into different areas within the development repository, see:

- Importing Content to Source Area
- Importing Content to Stage Area
- Importing Content to Library

Importing Content to Source Area

Content under development is stored in the project source area of the development repository. You can import content into the source area of a project. Here, the content does not have to be in consumable form.

To Import content into the source area of a project:

- 1. In the **Project Explorer** pane, select the module or folder where the content is to be imported.
 - Note: You cannot import content into the root folder of a project.
- 2. Click on Import menu, select To Project and click Source File.
- 3. Browse to the location of the content file on your local disk or network, select the file, and click Open.

The selected source file is imported to the source area of the project.

Importing Content to Stage Area

The stage area of the development repository contains content in consumable form. For content development processes that incorporate review cycle, the stage area provides a platform for review. You can also publish content directly from the stage area.

To import content into the stage area:

- 1. In the **Project Explorer** pane, select the module or folder where the content is to be imported.
 - Note: You cannot import content into the root folder of a project.
- Click on Import menu, select To Project and click Learning Object. The Import Learning Object wizard is displayed.
- **3.** Saba supports the following content formats:

- AICC
- Deployed SCORM Package
- Directory
- File
- **IMS** Content
- SCORM Package
- URL

Select the content format and click Next.

4. Enter the Learning Object Name. Based on the content format selected in *List item*. on page 84, enter the following additional fields:

Table 7: Content Format

Content Format	Fields		
AICC	Select either one of the following: Course Structure Files URL If you select Course Structure Files, browse and select the location of the following: au files crs files cst files des files If you select URL, enter the location of the URL.		
Deployed SCORM	Enter the address of the URL.		
Directory	Browse and select the zip file.		
File	Browse and select the file. Select the check box Convert to SCORM Package , if you want to convert the file to a SCORM package.		
IMS Content	Browse and select the file.		
SCORM Package	Browse and select the file.		
URL	Note: Enter the address of the URL.		

- 5. Click on the **Metadata** button to specify metadata for the content object. The **Specify Metadata** screen is displayed. You can add the following metadata:
 - Description
 - Content type
 - Language
 - Authors
 - Keywords

Click on Custom tab to add or update custom metadata.

Note: Although this step is optional, Saba recommends that you specify metadata for the content object. This aids the search and discovery of content by content developers.

6. Click Finish.

The content object is imported to the stage area of the project.

Importing Content to Library

You can directly import content into the Library area of the development repository. Content in this area is in consumable form and can be reused by content developers.

You can import content of the following types:

- File
- SCORM Object
- Template
- URL
- HTML Sites

You can add (or update) metadata for the content while importing the content into Library. For detailed information, see Specifying Metadata for Content in Library on page 77.

For information about the tasks involved in importing content. see:

- Importing File to Library on page 86
- Importing SCORM Object to Library on page 86
- Importing Templates to Library on page 87
- Importing URL to Library on page 87
- Importing HTML sites into the Library on page 87

Importing File to Library

To import content file into Library:

- 1. Click Import and select To Library.
- 2. Click File. The Select Folder screen is displayed.
- 3. Select the Library location where you want to import the file.
- 4. Click **OK**. The **Import Learning Object File** screen is displayed.
- 5. Browse to the location of the file on your local disk or network and select the file.
- **6.** Enter the name of the learning object.
- 7. You can specify metadata for the content object by clicking on **Metadata** button.

Note: This step is optional.

8. Click Import.

Importing SCORM Object to Library

To import a SCORM object into Library:

- 1. Click **Import** and select **To Library**.
- 2. Click SCORM Object. The Select a SCORM Package screen is displayed.
- 3. Select the SCORM package from you local disk or network and click Open.
- 4. The disassembly wizard is displayed. For detailed information, see *Disassembling a Content Package* on page 104.

Importing Templates to Library

To import template into Library:

- 1. In the Right-Hand pane, click Library and select the folder where you want to import the content.
- 2. Click **Import** and select **To Library**.
- 3. Click Template. The Import Learning Object- Template screen is displayed.
- **4.** Browse and select the template from you local disk or network.
- **5.** Enter the name of the template.
- **6.** You can specify metadata for the content object by clicking on **Metadata** button.

Note: This step is optional.

7. Click **Import**.

The template is imported into the selected folder within Library.

Importing URL to Library

To import template into Library:

- 1. In the **Right-Hand** pane, select the folder where you want to import the content.
- 2. Click Import and select To Library.
- 3. Click URL. The Import Learning Object- URL screen is displayed.
- **4.** Enter the address of the URL
- **5.** Enter the learning Object Name.
- 6. You can specify metadata for the content object by clicking on Metadata button.

Note: This step is optional.

7. Click Import.

Importing HTML sites into the Library

Saba Content Manager supports import of HTML sites as a zip file, with the ability to deploy and then launch using a specified start file. Content developers can import the zipped content directly into the Library.

To import zipped content into the library:

1. In Saba Content Manager, click Import menu > ;To Library > ;Zip File

In the **Library** pane of Saba Content Manager, select the folder where you want to import the content, right click, select **Import** > ;**Zip File**.

- 2. The **Import to Library** pop-up screen is displayed.
- 3. Specify the File, enter the Learning Object Name and click Import.

Source Control of Content

Effective change management processes enable the delivery of projects on time. The Saba content repository helps you to manage changes to your source files. Using Saba Content Manager, you can check out files that have been imported into the content repository, edit them and check them in.

This functionality also provides automatic implicit versioning of all the checked in files, which creates an auditable trail of all historic changes and safeguards against any loss of data.

When multiple editors edit content files within a project, there is a possibility of one editor overwriting the work of another. You can avoid such a situation by using source control. When an editor checks out a content file, it is locked in the editors name. No other user can check out the same file, till the editor who has checked out the file checks in the file. This ensures that multiple users do not work on the same file simultaneously.

Check Out Files

To make changes to a content file in development, you must first check it out. A local copy of the file is placed in your Local Working Directory. Once you check out a file, it is *locked* in your name. No other user can check out the same file, when it is locked in your name. The name of the user who has checked out the file is displayed in the **Users** column of the Project View pane. You can check out a single file or multiple files depending on the selections you make while performing the check out operation.

A user who has checked out a file can perform the following operations on it:

- Check In Files
- Undo Check Out
- Getting a Content File on page 82
- View Version History

If a file has been checked out by another user, you can perform the following operations:

- Getting a Content File on page 82
- View Version History

How to Check Out a File?

To check Out a file, select the file in the Project View pane and use any one of the following options:

- Click **File** menu and click **Check Out**.
- Right click on the selected file and click Check Out.
- Click Check Out icon on Command toolbar.

Check In Files

After you check out a file and modify it, you must check in the file. The updated file is stored in the development repository and its version is incremented. For example, if you check out a file with a version 1.0, edit the file, and then check in the file, the version of the file changes to 1.1.

After you check in the file, the file is no longer locked against you name. Any other editor can pick up the file, check it out and edit it.

How to Check In a File?

To check in a file that was checked out, select the file in the Project View pane and use any one the following options:

- Click File menu and click Check In.
- Right click on the selected file and click Check In.
- Click Check In icon on Command toolbar.

Undo Check Out

If you have checked out a file, but want to undo the operation, you can do so by using the Undo Check Out command. Typically, you may need to undo a check out, if you have checked out a file by mistake or some other user needs to edit the file before you do.

When you undo a check out, the version number of the file does not change.

Note: Once you undo a check out, the lock on the file is released. Any changes that you may have made to the local copy of the file are not lost.

How to Undo Check Out?

To undo a check out, select the checked out file and use any one of the following options:

- Click File menu and click Undo Check Out.
- Right click on the selected file and click Undo Check Out.

View Version History

You can view the version history of content files in any state of development. For each version, the following information is displayed:

- Version number
- Date and time at which it was checked in
- The user who edited the file and checked it in
- The comments entered by the user.

To view the version history of a file:

- 1. Select the file from the Project View pane.
- **2.** Use any one of the following options:
 - Click File menu and click Check In.
 - Right click on the selected file and click **Check In**.
 - Click Check In icon on Command toolbar.

The **Version History** screen is displayed.

From the Version History screen, you can get a local copy of any version of a content file in development state.

From the Version History screen, you can perform the following operations for a content file in stage area or for content that is published:

- Get local copy
- View metadata
- View review details

Reusing Content

This topic covers the following:

- Reusing Files in Development
- Reusing Content in Library
- Deleting Content files within a project

Reusing Files in Development

You can copy content files in development and paste it to a folder within the same project or any other project. You cannot copy a file that is checked out or a file that is published. The file that you have copied and pasted always has 1.0 version. The state of the file you copy does not change. Hence files copied from the source area are pasted to the source area of a project. Similarly, files copied from the stage area are pasted to the stage area of a project.

To copy a content file, select the content file(s) and do any one of the following:

- Click on File menu and click Copy.
- Right click on the selected file and click **Copy** from the pop-up.
- Press Ctrl C.

To paste the file(s) that you have copied, select the folder where you want to copy the file, then click File menu and do any of the following:

- Click on File menu and click Paste.
- Right click on the folder in the Project Explorer pane and click **Paste** from the pop-up.
- Press Ctrl V.

Note: You can select multiple files and copy-paste them.

Copying Files to Library

The Shared Resource Library is an area within the development repository where you store consumable content for re-use. You can import objects such as assets, learning objects, and templates into Library. A predefined taxonomy subdivides the Library into several different partitions.

You can copy content in any state to Library.

To copy content to Library:

- 1. Select the content to be copied.
- 2. Click File menu and click Copy to Library.

or

Right click on the selected content and click **Copy to Library**.

The **Select Folder** screen is displayed.

- **3.** Select the folder location with the Library, where you want to copy the content. The top-level folders are predefined for classification of different content types. Select the right folder, so that other users will find the content when they browse the Library. For example, for learning object, copy it into the **Learning Objects** folder within Library.
- 4. Click OK.

The selected content is copied into the Library. Any content editor can now reuse this content lying in the Library.

Reusing Content in Library

Content in the Library can be imported to other content projects. You can import using any one of the following methods:

Copying the resource

This creates a copy of the asset in your project. Changes made to the asset in the Library will not be reflected in your project.

• Creating a reference

This creates a link to the content in Library. When content in Library is updated, the project owner receives a notification about the update. If required, the project owner or content editor subscribes to the new version of content in Library. For content packages assembled using the Course Assembly tool, an update to a shared resource file that is used in the package dynamically updates the package. For more information, see *Dynamic Update* on page 106.

To add content in Library to your project:

- 1. Select the project to which you want to import the content.
- 2. In the Right-hand pane, click Library and select the content to be imported.
- 3. Right click on the content and click Add to Project. The Add from Shared Resource Library screen is displayed.
- **4.** Select any one of the following:
 - Create a copy of this asset
 - Link to this asset
- **5.** Click **OK**. The **Browse for Folder Select Destination** screen is displayed.
- **6.** Select the destination directory and click **OK**.

The selected content in Library is imported into your project folder. It is imported into the source area of your project and has a version of 1.0 associated with it.

Deleting Content files within a project

You can delete content files in development. The file is deleted from the project area within the development repository.

You cannot delete a file, if it is in any of the following states:

- File is checked out
- File has been submitted for review

To delete a file, select the file and perform any one of the following operations:

- Click on **File** menu and click **Delete**.
- Right click on the selected file and click **Delete** from the pop-up.

Note: You cannot delete content files that are published.

Promoting Content to Stage Area

The stage partition in the development repository represents a state in the development cycle of a content project where content is in consumable form. Content in this area is available for review, and can be published and deployed on content servers.

While promoting content, you can also specify metadata for the content. Metadata provides high level information about the content which later aids in the search and discovery of content.

When you complete developing your content, and its in consumable form and ready for review, promote it to the stage area.

To promote content to the stage area:

- 1. Select the content and do any one of the following:
 - Click on File menu and click Promote to Staging.
 - Right click and click **Promote to Staging** from the pop-up.
- 2. The Promote to Staging wizard is displayed. Select the Content Format and click Next.
- 3. Enter the **Learning Object Name**.
- **4.** Specify metadata for the content object.
 - Note: Although this step is optional, Saba recommends that you specify metadata for the content object. This aids the search and discovery of content by content developers.

To specify metadata:

- a. Click Metadata. The Specify Metadata screen is displayed. The content format selected in *List item*. on page 91 and the learning object name specified in *List item*. on page 91 are displayed and cannot be modified. You can add the following metadata:
 - Description
 - Content type
 - Language
 - Authors
 - Keywords
- **b.** Click on **Custom** tab to add custom metadata.

If the content format selected in *List item*. on page 91 is **File**, then the **Convert to SCORM Package** check box is displayed. Select this check box to convert the file into a SCORM package.

The content is promoted to the stage area of the development repository with 1.0 version.

You can update content in the stage area using the get-update functionality. For detailed information, see *Get-Update Content*.

Initiating Content Review

You can initiate the cycle of review for content promoted to the stage area. Whether the content is intended to be a stand-alone module or just a piece of a larger module, you can submit it for review. While submitting content for review, you can also include instructions to reviewers.

If review is in progress for a content, then you cannot submit it for review again.

To submit content for review:

- 1. Select the content to be reviewed.
- 2. Click on Workflow and click Submit for Review. The Submit for Review screen is displayed.
- 3. In the Review Deadline field, enter the date by which the content must be reviewed.
- 4. Enter Instructions to Reviewers.
- 5. All reviewers for the project are displayed. You can add reviewers by clicking the **Add** button. This displays the **Select People** screen displaying all defined content team members. Select the required person and click **OK**.

To delete a reviewer, select the reviewer and click **Delete**.

If the content team members list does not display the person you want to add as a reviewer, then you can find the person as follows:

- a. Click on the **Search** button in the toolbar.
- **b.** The **Search People** screen is displayed. Enter the search criteria and click **Search**.
- **c.** In the **Search Results**, select the appropriate person, right click and click **Assign as Reviewer**. The selected person is assigned as a reviewer for the project.
 - **Note:** You can select multiple people and assign them as reviewers.

6. Click OK.

Once you submit a content for review, its review status changes to **Review in Progress**.

Updating Content

You can update content in the stage area and Production Repository using any one of the following methods:

· Get-Update Content

Use this method to update content in the stage area or Production Repository directly, without modifying the source content. For information about method of updating content, see *Get-Update Content*.

· Modify source content and promote it.

Use this method to check-out the source content, update it, promote to stage, incorporate review cycle, and then update published content. For workflow regarding updating content using this method, see *Phase Six: Update Published Content* on page 28.

Get-Update Content

The get-update functionality provides a flexible approach to file management, in which all versioning is explicit. While updating content, the user specifies whether the update is an overwrite or a new version, and how it will be versioned.

When you overwrite content, the new content replaces the existing content in the repository. The change is reflected dynamically throughout all offerings that have subscribed to it.

When you create a new version, both this new version and the existing version reside in the repository. Catalog administrators will need to import the new version as a new content module and disable the old version.

You can update content in the following states:

- Content in the stage area
- Content in production

Steps involved in updating content:

- 1. Get a local copy of the content
- **2.** Modify the content in your local disk or network.
- 3. Update the content

For information on getting a local copy, refer to *Getting a Local Copy* on page 82.

Updating content

You can update content in the stage area and Production Repository. To update the content:

- 1. Select the content to be updated.
- 2. Click **File** menu and click **Update**.

Right click on the selected content and click **Update**.

The **Update with Local Copy** screen is displayed.

- **3.** Select any one of the following options:
 - Overwrite Existing Version

If you select this option, then you must select the version that you want to overwrite. The last version is selected by default.

This overwrites the selected version with a copy of the content in your local working directory.

Create a New Version

If you select this option, then you must enter the new version number.

This creates a new version of the content with the specified version number.

- **4.** Enter comments, if needed.
- 5. Click OK.

Release Labels

Labels provide a method of naming important combination of file revisions for later reference. For example, the file revisions that comprise a particular release of your content project might be given a label release x.y. At a later time, you can retrieve all the files associated with that label into your local working directory using a single command.

You can associate a label with any version of a file or project. A label cannot be used for more than one version of a content resource. When a label is set on one version for a resource, it is removed from all other versions of the same resource.

Setting Release Labels

You can set a release label for a single content resource, for multiple content resources, for all content resources within a folder, or for an entire content project.

You can set labels when:

- You want to keep track of all the content file revisions contained in particular release of your content project.
- There exists a particular set of content file revisions that you want to give other users.
- Your content development cycle contain multiple cycles of review and you want to identify the version of the content
 files associated with each review cycle.

To set a release label:

- 1. Select the content file(s), folder, module or project that you want to label.
- 2. Right click and select **Set Release Label**

Or

Click File menu and click Set Release Label.

- **3.** The **Set Release Label** screen is displayed. Enter the release label.
- **4.** Select the **Recurse into Sub-folders** check box, if you want to label all content files inside subfolders. If you do not select this option, only content files in the selected folder are labeled, not the content files inside the sub-folders.
 - Note: The Recurse into Sub-folders check box not enabled when you select individual content files for labeling. It is enabled only if you select a folder or content project for labeling.
- 5. Click OK.

Getting Content using Release Labels

Once you set a release label on a content file, folder or project, you can later retrieve all the files associated with that label into your local working directory using a single command.

You can also associate a single release label with content in the source and stage area. When you update a staged resource, by modifying its source content, you can use release labels to identify the source content and get it into your local disk or network.

To get content files associated with a release label:

- 1. Select the content file(s), folder, module or project that you want get.
- 2. Right click and select Get by Release Label

or

Click File menu and click Get by Release Label.

- **3.** The **Get by Release Label** screen is displayed. Enter the release label. If you have selected a folder, module or project, you may select the following options:
 - Select the Recurse into Sub-folders check box, to get all content files inside the subfolders, that are associated
 with the specified release label. If you do not select this option, you will get only the content files in the selected
 folder, not the content files inside the sub-folders.
 - Select **Get a Clean Copy** check box, if the folder inside your local working directory should contain only the files associated with the release label. Any existing files inside the folder in your local disk are deleted before getting the files associated with the specified release label.
- 4. Click OK.

Removing Release Labels

You can remove release labels that are associated with content files.

To remove a release label:

- 1. Select the appropriate content file(s), folder, module or project.
- 2. Right click and select Remove Release Label

Or

Click File menu and click Remove Release Label.

3. The Remove Release Label screen is displayed. Enter the release label that you want to remove.

Select the Recurse into Sub-folders check box, to remove all content files inside the subfolders, that are associated with the specified release label. If you do not select this option, you can remove the specified label for only the content files in the selected folder, not the content files inside the sub-folders.

4. Click OK.

Handling Files of Large Size

Saba Content Management provides the ability to handle files of large size. It handles files in chunks. You can perform the following functions on large sized files:

- Get
- Update
- Check-in
- Check-out

Settings for Handling Large Sized Files

You need to set the following parameters in order to handle large sized files:

- Server Side Settings
- Saba Content Manager Settings

Server Side Settings

On the server side, you need to specify two settings as follows:

- 1. Login to Saba Web as an Admin user.
- 2. Select the **System Administration** module.
- 3. Select Sites in the left-hand sidebar. All existing sites are displayed.
- 4. Select the appropriate site to display the **Site Detail** page.
- 5. In the properties section, click on **Content** link. This displays the content properties file.
- 6. In the field Chunk size for file downloading, specify the chuck size in Megabytes.
 - Note: Saba recommends that you specify chuck size less than four megabytes.
- 7. In the field Temporary Directory for file upload and download, specify a network shared folder that has read and write access to all nodes in the cluster. This directory is used for file upload and download.
- 8. Click OK.

Once you make the above changes, you must regenerate the properties file as follows:

- 1. Navigate to the following location and delete the content.properties file from the appropriate site.
 - <Saba Install Path>\web\<site>\Properties\content.properties
- **2.** Restart the application server.

The content.properties file is regenerated.

Saba Content Manager Settings

In Saba Content Manager, you can specify the chunk size for uploading a file. The maximum file (chunk) size that can be uploaded directly is dependent on memory of the machine on which Saba Content Manager runs.

To specify the chunk size:

- 1. Login to Saba Content Manager.
- 2. Click on **Tools** menu and click **Options**. This displays the **Options** screen.

- 3. Click on Server Settings tab and specify the Chunk Size for uploading a file in megabytes.
 - Note: Saba recommends that you specify chunk size between five megabytes and twenty-five megabytes.
- 4. Click OK.

Chapter

9

Content Assembly

Topics:

- Overview of Content Assembly Tool
- Assembling a Content Package
- Managing Content Packages
- Disassembling a Content Package
- Content Conversion
- Updating a Content Package
- Dynamic Update

Content assembly facilitates reuse of existing content. You can assemble content into multiple packages. This enables content to be reused multiple times and in multiple contexts, effectively maximizing its value.

Saba Content Management provides the Content Assembly Tool that enables you to assemble various types of content objects into blended content packages, and output to a SCORM package format. You can also disassemble structured packages and their component parts as independent reusable learning objects.

Overview of Content Assembly Tool

The Content Assembly tool is part of Saba Content Manager. You can assemble content packages and publish them out to a SCORM 1.2 format. You can preview the packages and save or publish them to your project. You can also save the published packages locally to your hard disk or network.

For detailed information, see:

- Launching the Content Assembly Tool
- Using the Content Assembly Tool

Launching the Content Assembly Tool

The Content Assembly Tool is launched when you:

- Create a new package
- Open an existing package
- Copy a package

To launch the Content Assembly tool and create a new package:

- 1. In the Project Explorer pane, go to the folder location within a project where you want to create the package.
- 2. Select Package menu and click New Package.
- 3. Enter the name of the package and click Save. The Content Assembly Tool is launched.

If your local working directory is not set, you must specify a path on your local disk or network. The draft assembly package is saved within this folder until you explicitly save it into a project folder.

Using the Content Assembly Tool

The Content Assembly Tool consists of two panes: the Package Explorer pane and the Properties pane. A toolbar is displayed above these two sections.

The Package Explorer pane displays the package tree with its sections and items. The package and each section are displayed as nodes. Click on a node to expand or collapse it. Select a section or items to view its details.

The Properties pane displays the details of an item selected in the Package Explorer pane. If you select the package, the Properties pane displays the package name and description. If you select a section within the package, the Properties pane displays the name and description of the selected section. If you select an item, the Properties pane displays the item properties, such as item name, description, mastery score, time limit, and time limit action.

For detailed information, see Content Assembly Tool Controls.

Content Assembly Tool Controls

The package toolbar provides controls for performing the assembly tasks. The table below lists and describes the controls available within the Content Assembly Tool

Table 8: Content Assembly Tool Controls

Control	Function
New Section	Inserts a new section in the package. You can insert a section only within the main package node. Hence this is enabled only when you select the package from the Package Explorer pane. You can insert sections using any one of the following: Clicking New Section icon File >> New > Sections Sections cannot be nested inside other sections.

Control	Function
New Item	Inserts a new content item inside the package or selected section. This is enabled only when you select the package or any section within it.
	You can insert content items using any one of the following:
	 New item icon File > New > Item > Browse Library/Project
	• File > New > Item > Search Library
	You cannot insert content items inside other content items.
Save	Saves the changes made to the package to your local disk or directory. It is saved inside your local working directory in the same folder structure as the project.
	You can save the assembled content by using File > Save or by clicking the Save icon
Cut	Removes the entire selected item or section (including the items within it) from the Package Ex~plorer pane, and places the item in the clipboard. The removed item or section can then be pasted. For a section, items inside it are also copied to the clipboard.
	You can cut sections or items by selecting it and then using the Cut icon (scissor sign)
Paste	Pastes an item from the clipboard into the Package Explorer pane, placing it at the end of all the sections and items. All the properties of the content item or section are also pasted.
	You can paste sections or items (that you had cut previously) by selecting the location in the Package Explorer pane where you want to paste it and then using the Paste icon.
Delete	Deletes the entire selected item or section from the Package Explorer pane. The deleted item or section is not available for pasting.
	You can delete section or items by selecting it and then using File > Delete or by using the delete icon $(X \text{ sign})$
Undo	Performs an undo for the last operation that you did. Click the undo icon to undo an operation.
Redo	Performs the operation that you undid previously. This is enabled only if you have performed an undo. Click the redo icon to redo an operation.

Assembling a Content Package

Using the Content Assembly Tool, you can mix assets of any type and SCOs (of SCORM 1.2 format) into assembled packages. For example, you can assemble the following objects into a structured package:

- A PowerPoint presentation
- · A Flash movie
- A SCO from an imported SCORM 1.2 package
- An assessment created using the Saba Assessment Authoring Tool

These content assets and SCOs can be divided into groups using package sections.

You can define rules for rolling up results of assembled modules. These rules are consistent with SCORM 1.2 specifications. For each item, rollup rules include:

- · Mastery score for the item
- Time limit for the item
- · Action to be taken on exceeding the time limit

For detailed information, see:

- Creating a New Package
- Previewing a Content Package
- Publishing a Content Package

Creating a New Package

You can create new content packages using the Content Assembly Tool. The newly created source package is stored in the source area of the development repository as version 1.0, and has an extension of .SAT associated with it.

The draft content package is also stored inside your local working directory in the same folder structure as the project. For example, if your local working directory is defined as c:/folderA and you have created a new package inside the project news/weekly, then the draft content package is stored in the folder c:/folderA/news/weekly.

To create a new package:

- 1. In the Project Explorer pane, select a project and click on a module or folder within it.
- 2. Select Package menu and click New Package.
- 3. Enter the name of the package and click Save. The Content Assembly Tool is launched.

When you create a new package, a draft package with an extension . SAT is created in the source area of your project. This file is checked out and locked in your name.

Using the Content Assembly Tool, you can add content items to the package and use sections to organize the content items into groups. To do so, see:

- Creating Package Sections
- Importing Package Items

After assembling the package, save the package by clicking on the **Save**icon or by clicking the **File** menu and then clicking **Save**.

When you exit the Content Assembly Tool, the **Save to Repository** pop-up is displayed. If you click **Yes**, the package is checked in, its version incremented implicitly, and package unlocked. If you click **No**, the package is saved locally

Creating Package Sections

Sections are used to divide a package into groups of similar or related content items. Packages can have an unlimited number of sections, which are nested inside a package. However, sections cannot be nested inside other sections.

To create a section inside a package:

- 1. Select the package node in the Package Explorer pane.
- 2. Click on New Section in the Package Explorer pane

Oı

Click File> New > Section.

- 3. The New Section pop-up screen is displayed. Enter the section name and description.
- 4. Click Save.

In the Package Explorer pane, a new section is created inside the package.

Importing Package Items

An item represents a content object (SCO) within the package. A package can contain content items directly within it or items can be grouped inside sections. A package or section can contain an unlimited number of items. However, items cannot be nested inside other items.

To import an item inside a package or section:

- 1. In the Package Explorer pane, select the package or section inside which you want to import the content item.
- 2. Click on **New Item** in the Package Explorer pane

Or

Click File> New > Item > Browse Project /Library.

- 3. The Select File pop-up screen is displayed. You can select a content item inside the current project or Library area by navigating to the required folder. Based on the type of item and location from where you have selected it, the screen flow changes as follows:
 - If you select a content item (other than a SCORM package) from the project area and click **Open**, the **New Item** screen is displayed. Enter the item name and the following optional fields and then click Save:
 - Description.
 - Mastery score
 - Time limit
 - Time limit action.
 - · If you select a content item from the Library area and click Open, the Import Item pop-up is displayed. Select any one of the following options and click **OK**:
 - Create a copy of this resource
 - Link to this resource
 - If you select a SCORM package from the project area, then the disassembly wizard opens and you can select and import any or all of the content objects within the SCORM package. For detailed information, refer to Disassembling a Content Package.

Importing URL Items and Zipped Content into the Content Assembly Tool

Content developers can also import the following types of content into the Content Assembly Tool:

- URL Items
- Zipped Content

Importing URL Items into the Content Assembly Tool

You can import URL content into the Content Assembly Tool using any of the following methods:

Import from Library

You can import a shared resource of content format "URL" into the Content Assembly Tool.

Import from project

You can import a staged resource of content format "URL" into the Content Assembly Tool.

Import directly

You can directly specify URL using **New Item> URL** menu in the Content Assembly Tool.

You can edit the URL using item properties.

During content runtime, the system captures the completion status and time spent for the URL content.

Note: You cannot edit the URL for SCOs taken from other assembled packages, as the SCOs are treated as pure SCOs and not as legacy content. URLs to deployed SCORM content are not supported as there may be cross domain scripting issues if deployed on any server other than the content server containing SCORM content. Some external sites open in a separate browser window instead of the content frame of the online player. An error is displayed if the site is opened in the content frame of the online player. For such URL content, completion status and time spent will not be calculated during content runtime. Hence you should be judicious about adding the external URL into the Content Assembly Tool.

Importing Zipped Content into the Content Assembly Tool

You can import zipped content into the Content Assembly tool from the following areas:

From Library

You can import a shared resource of content format "Zipped File" into the Content Assembly Tool.

From Project

You can import a staged content of content format "Zipped File" into the Content Assembly Tool.

You must specify a starting page for zipped content. The starting page must be specified as a relative path of the start file in the zipped content.

SCOs taken from other assembled packages are treated as pure SCOs and not as legacy content. Hence you cannot edit the starting page for such SCOs.

During content runtime, the system captures the completion status and time spent for the zipped content.

Previewing a Content Package

Saba provides the ability to preview content packages directly from the Content Assembly Tool. Saba launches the content in Saba Offline player.



Note: In preview mode, no tracking or scoring information is recorded. All you can do is navigate through the content.

To preview content:

- 1. Select the item you want to preview.
- 2. Click the **Preview** icon

Or

Select the **Publish** menu and click **Preview Package**.

Publishing a Content Package

You can publish a content package at any time from within the content assembly tool and you can publish a package as many times as you want. Each time you publish, the tool generates a SCORM 1.2 package and saves it into the stage partition of your project in a selected folder. You can also save the package to your local disk or network.

To publish a package to the stage are of a project:

1. Click on the Publish icon

Or

Click on the **Publish** menu and click **Publish Package**.

- 2. The **Publish Package** screen is displayed. Enter the package name.
- 3. Before you publish the package, you can specify metadata for the package as follows:
 - a. Click **Metadata**. The **Specify Metadata** screen is displayed. Metadata already associated with the content is displayed. These metadata are parsed while importing the content into Library. You can add (or update) the following metadata:
 - Title
 - Description
 - Language
 - Authors
 - Keywords

- b. Click on Custom tab to add or update custom metadata.
- c. Click OK to return to the Publish Package screen
- 4. Select Publish to Project.

You can use the **Save to Local Disk**. option only when you want to update the content package. For more information, see Updating a Content Package

5. Click Publish.

A SCORM 1.2 package is generated and saved to the stage area of the project. It has a version of 1.0 associated with it.

Managing Content Packages

After creating a package and saving it, you may want to copy the package, edit the package and modify items within it, or delete the package. For detailed information, see:

- Editing a Content Package
- Copying a Content Package
- Deleting a Content Package

Editing a Content Package

You can open a package in the source area of a project and edit it, preview it, or specify metadata for the package.

Note: If the package is locked by another user, you cannot open it.

To open a package:

- 1. Select the package to be opened.
- 2. Do any of the following to open the package:
 - Double click on the selected package
 - Click on Package menu and click Open Package.
 - Right click on the selected file and click **Open Package**.

The Content Assembly Tool opens. You can add sections and content items, rearrange items, delete items, specify metadata, and preview the package. For detailed information on performing these tasks, see:

- Creating Package Sections
- Importing Package Items
- Content Assembly Tool Controls

Copying a Content Package

You can create a copy of an existing package and modify the newly created copy. Packages that are locked by another user can also be copied.

To copy a package:

- 1. Select the package to be copied.
- 2. Click on Package menu and click Copy Package.

Or

Right click on the selected file and click **Copy Package**.

- 3. The Copy Package pop-up screen is displayed. Enter the Package Name and Description.
- 4. Click Save.

The Content Assembly Tool opens. This copied package has a version of 1.0 associated with it and it is checked out and locked in your name. You can modify the package.

Deleting a Content Package

You can delete packages that are no longer needed. Packages that you have checked out can also be deleted.

To delete a package:

- 1. Select the package to be deleted.
- 2. Click on Package menu and click Delete Package.

Or

Right click on the selected file and click **Delete Package**.

Note: Deleting a package does not delete any published versions of the package that may have been created.

Disassembling a Content Package

Saba Content Management provides the ability to disassemble SCORM packages and save their component parts (SCOs) into the Shared Resource Library as independent reusable learning objects. These disassembled SCOs can be used in the assembly of other packages.

SCORM packages may not have sufficient metadata about resources to extract SCOs as fully independent units. Hence, you can choose from the following two type of disassembly:.

Smart extraction

Smart extraction extracts content objects based on resource metadata. This means that just those resources which are used to deliver the SCO are extracted from the package. You can choose smart extraction if sufficient resource metadata is available.

Loose extraction

Loose extraction extracts all the resources in the content package for each SCO. It results in larger SCOs, with a size almost equal to the parent content package. This may be necessary if sufficient metadata is not provided within the package.

Saba recommends that you first try extracting content objects using smart extraction. You can use the Preview function to check whether the smart extraction produces a valid result. If the smart extraction fails, only then choose loose extraction.

For information on the procedure to disassemble a content package, see *Disassembly Wizard*.

Disassembly Wizard

Saba provides a disassembly wizard that is used to disassemble SCORM packages. You can invoke this wizard while:

- Importing SCORM objects to Library using Saba Content Manager (Import> To Library > SCORM Object > select a SCORM package > Disassembly wizard)
- Assembling a package using the Content Assembly Tool (File> New> Item> Browse Project/Library > select
 a SCORM package > Disassembly wizard)

Extracting content objects using the disassembly wizard is a two step process:

- 1. Select the content objects to be imported.
 - **a.** The **Import SCORM Object SCORM Package Details** screen is displayed. To select all the objects, click on **Select All** button.

To preview a content object, click on the **Preview** button. Saba recommends that you use Smart Extraction to extract the content objects. If Smart extraction fails, then deselect **Smart Extraction**, and import the content objects.

b. Click Next.

- 2. Import the selected objects.
 - a. The Import SCORM Object Extracted Lessons screen is displayed. Verify that the content objects that you want to import are displayed.

You can add (or update) the metadata for the content object by clicking on the Metadata button. The Specify Metadata screen is displayed. Enter the metadata and click OK.

b. Click Import.

The selected content objects are imported into the content assembly or the Library, depending on where you invoked the wizard from.

Content Conversion

Saba Content Management provides a conversion tool for converting legacy content to a SCORM-compliant format for optimized delivery in a web environment with runtime tracking capabilities. This enables you to transform the content to a format optimized for delivery through an LMS. The conversion tool will transform any stand-alone file, for example a Word document, PowerPoint file, PDF file, or HTML page.

The content asset is wrapped as a single SCO in a SCORM package format.

Tracking capabilities include: status, time spent, e-signature.

Two places where you can perform content conversion are during:

- Import of content as a learning object
 - For details on how to do this, refer to *Importing Content to Stage Area* on page 84.
- Promotion of content from Source to Stage area for the project

For details on how to do this, refer to *Promoting Content to Stage Area* on page 91.

Updating a Content Package

Once you generate an assembled content package in the stage area, you can update it in either of the following ways:

Open the source package (*.SAT file), make the appropriate edits, and then republish the package as a new version of an existing published package or as an entirely new package.

For detailed information on editing a content package, see *Editing a Content Package*.

You can get a local copy of the content package, open the package from your local working folder and make the appropriate edits outside of Saba, then update the stored version with the modified version.

To get a local copy of the content package, do the following

- 1. Select the content package in stage area.
- 2. Click on Get icon or right click and select Get Local Copy.

The content package is copied inside your local working directory in the same folder structure as the project. For example, if your local working directory is defined as c:/folderA and the staged package is inside the project news/weekly, then a get of the package copies it to the folder c:/folderA/news/weekly/stage/.

To update the package, do the following:

- 1. Select the SCORM package in stage area that you want to update.
- 2. Select the File menu and click Update

Click on the **Update** icon in the toolbar.

Dynamic Update

When a shared resource is updated, Saba provides the ability to regenerate the content packages that reference the shared resource.

Dynamic regeneration of content packages is a process that is invoked when a shared resource that is referenced by a content package, is updated. Saba notifies the project owners and content editors about the dynamically regenerated content packages. The project owner can then perform actions on the newly generated content package such as initiating reviews or promoting to production.

Starting Dynamic Update

Dynamic update is invoked when you update a shared resource that is referenced by a content package that was assembled using the content assembly tool. Hence, when a resource in the library is checked out, modified and checked in, Saba checks for content packages that reference this resource. If there are any content packages that use the shared resource, then the dynamic update wizard is invoked.

The Dynamic Update Wizard

When a shared resource is updated, and this resource is referenced in one or more content package, then the dynamic update wizard is invoked. The wizard has the following screens:

Step 1: Dynamic Update Confirmation

Step 2: Dynamic Update Subscriptions

Step 3: Dynamic Update Progress

Step 4: Dynamic Update Report

Step 5: Next Steps

Follow the steps below to navigate through the wizard.

Step 1: Dynamic Update Confirmation

The first screen in the wizard is the **Dynamic Update Confirmation** screen. This screen tells you that the shared resource that you updated is referenced by one or more assembled content packages.

To select the packages that are to be regenerated, click **Next**. This takes you to Step 2: Dynamic Update Subscriptions.

If you do not want to dynamically regenerate any content packages, click Cancel to exit the Dynamic Update wizard.

Step 2: Dynamic Update Subscriptions

The **Dynamic Update Subscriptions** screen lists all the content packages that reference the updated shared resource. You can regenerate all the packages or choose the packages that you want to regenerate by selecting the appropriate check box.



Note: Content packages that are currently checked out cannot be regenerated.

Click **Next** to start regenerating the selected content packages.

The system triggers the Content Package Regenerated notification to the project owner and the content editor (who last modified the source package).

If you do not want to dynamically regenerate the content packages, click Cancel to exit the Dynamic Update wizard.

Step 3: Dynamic Update Progress

The **Dynamic Update Progress** screen displays the progress in regenerating the packages. It displays the number of packages that are regenerated and the total number of packages for regeneration. Once the regeneration is complete, click Next.

Step 4: Dynamic Update Report

The Dynamic Update Report screen displays a summary of the packages regenerated. For each package that is regenerated, it displays the project name, the draft package name (*.SAT file), the name of the regenerated package and the status of regeneration.

For packages that fail during regeneration, the status is displayed as Failed. Click on Failed link to display the Process Log Detail screen with details about why and where the package failed during regeneration.

Click Close to exit the Dynamic Update wizard.

Step 5: Next Steps

The Content Package Regenerated notification is received by the project owner and the content editor (who last modified the source package).

The project owner can do any of the following:

- Preview
- Submit for Review
- Roll back
- Publish to production

Part



Content Administration

Topics:

- Content Concepts
- Content Formats
- Configuring the Asset Store and Content Servers
- Configuring Saba Player Templates
- Managing Content
- Managing the Knowledge Base
- Detect and Fix Tool
- OLSA Integration
- Content Delivery Vendor Integration
- Configuring Content Vendors

Chapter

10

Content Concepts

Topics:

- Overview
- Roles and Tasks
- Tracking vs. Non-Tracking Content
- Content Scoring
- Using Content for Evaluations

This chapter describes the Saba content concepts.

Overview

You can use Saba to attach course material ("content") to any course. This might be as simple as providing a PDF copy of a textbook, or as elaborate as a standards-compliant course with multiple lessons and with automatically-graded exams. Saba lets you import a wide variety of content formats into its system. Saba can deploy the content material on its own servers, or make use of content that has already been deployed on external servers. Once content has been imported into Saba, catalog administrators can attach it to any learning offering. Learners in the course can run through the content at their convenience; any results will be stored for the instructor to review. Indeed, you can create web-based training in which the entire course is provided as content modules; Saba can automatically process the results of the content and mark a learner as having completed the class.

Saba Content Terminology

Saba can make use of content created through other applications. In some cases, this content might be a simple file such as a Word document or a PowerPoint presentation, or it may be a collection of lessons and tests complying with some online content standard (such as AICC or SCORM).

Saba uses certain terms in specific ways:

- A content object is a single collection of lessons, which is imported into Saba as a unit.
- A content object is made up of one or more lessons. The internal structure of a content object depends on what kind of content it is. For example, if a content object is of the generic file type, it is made up of a single lesson, the file. A standards-based content object might be made up of several lessons (representing lesson text, exams, etc.).

Note: Certain content formats have their own terms for the components. For example, SCORM calls the lessons "Sharable Content Objects" (SCOs), and AICC calls them "Assignable Units" (AUs). In this book, we will use the term "lesson" as the generic term for the separate pieces that make up a content object.

- You create a content object in Saba by *importing* the content. Depending on the content type, you might upload a file (which Saba would then deploy on one of its own servers), or you might provide a pointer to content which is already deployed on some other server.
- Catalog items subscribe to content, making it available to learners. Catalog items do this by creating learning modules; each module is associated with a single content object. Catalog administrators can set up complex requirements for which modules learners need to use; for example, a particular class might require that students either take module A, then B, then C, or take module D. The figure below describes how a learning item subscribes to content.

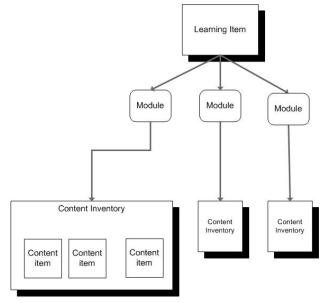


Figure 13: Content Requirements

Architecture

Most Saba objects store their information in a relational database (the Saba data store). This database stores such things as employee information, class registrations, and Saba security privileges. However, content in Saba is stored differently, on a number of different computers:

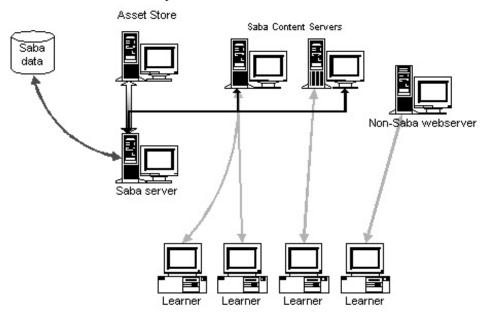


Figure 14: Saba Content Storage

- The Saba content repository stores information about the content, such as the content object's name, the server it's stored on, and which classes have subscribed to the content. The repository also arranges content into a hierarchy of folders, so catalog administrators can find the content they need quickly. This information is stored in the Saba data store and can be accessed directly only by the Saba server; users and administrators connect with the Saba server, which in turn connects with the data store to fetch content repository information.
 - Note: The repository folders are used to organize the content, making it easier to find the right piece of content when you need to subscribe to or edit it. The folders do not have any effect on where the actual content is stored, or who has permission to use it.
- The asset store stores exact copies of all the content files which are uploaded. Some content files have to be processed before they can be used by learners; for example, some content is uploaded as a ZIP archive, which has to be expanded before learners can use the content. Saba stores the exact file, unaltered, in its asset store; this lets Saba export the information when necessary, or redeploy it to a new server. The Saba server is the only machine which needs to connect with the asset store; it archives content files there when they are uploaded, and fetches them off that machine when they are needed. The asset store acts as a safety vault for storing a copy of the content in a secure place from which it can be retrieved in the event the content servers on which it is deployed get corrupted, moved, or otherwise compromised.
- The content is actually *deployed* on *content servers*. When users consume the content, their browsers make a direct connection with the content server. There are two kinds of content server:
 - A Web server can be registered with the Saba content administrator, making it a Saba content server. When you upload certain kinds of data, Saba deploys the appropriate files to the Saba content server you choose. Saba is responsible for writing the appropriate files to that machine.
 - A Web server can also serve content without being registered with Saba (an external content server). In that case, when you import content into Saba, you will simply provide references to the data on the appropriate webserver. You are responsible for putting the appropriate files on that webserver.

Note that the same machine can serve as both a Saba content server and an external content server. When you register a Saba content server, you designate a certain directory on the server as being used for Saba content; Saba will be



Note: Some forms of content are deployed exactly as they are uploaded. For example, if you upload file-type content (such as a PDF file), the exact file you upload will be copied onto a Saba content server. In that case, Saba will still store an archive copy of the file in the asset store.

Each type of content is deployed in a specific way; for example, file-type content is always deployed on a Saba content server and archived in the asset store. For information about how each content type is stored, see *Tracking vs. Non-Tracking* Content on page 119.

Interacting with Saba Content

Different Saba users will interact with content in different ways. Not all users will need the same privileges, or need access to the same computers.

- A content user is someone who needs to consume the content (for example, by taking an online test). A content user does not register for content directly; instead, the user registers for a class (or other catalog item) which has subscribed to a piece of content. The content user's machine has to be able to make an HTTP connection with the content server that stores the content (whether it is a Saba content server or an external content server). Thus, you must make sure that the content servers are web-accessible to the content users. Users can also access content directly from the Knowledge Base, without the overhead of having to register for a class in the Learning Catalog.
- A catalog administrator is someone who sets up catalog items. The catalog administrator can Attach Content to any catalog item; while attaching content, Saba prompts the catalog administrator to select a content object. Catalog administrators also have permission to import content and edit content metadata (that is, information about the content, such as its name, description, and location).
- A content author is the person who creates/assembles content using Saba Publisher or any other authoring tool that produces content in a format supported by Saba. Content authoring takes place outside the Saba system and, once created, the content can be imported into the repository by content administrators. Some authoring tools also support tight integration capabilities for integrating directly with Saba content repository.
- A content administrator has permission to import and edit content, and also to configure the various Saba content servers (such as the content servers and the asset store). The content administrator thus needs to know some network details which are hidden from other users; for example, the administrator needs to know what access protocol Saba should use to access a content server (for example, FTP), and other configuration-dependent details (such as the FTP username, password, and local directory).
- Some tasks are performed by an ordinary system administrator. For example, before you can register an asset store with Saba, you must have it configured as an HTTP server, and make it network accessible to the Saba host machine. These tasks can generally be performed by network administrators; they do not need to have a Saba account.

Of course, the same user can function in more than one of those roles. For example, it is very common for the content administrator to also be a catalog administrator.

Roles and Tasks

This section describes the main content-related tasks people will perform. Different users will perform different tasks; for example, the typical learner will interact with a content module, but will never need to import content into Saba.

The following tasks are described:

Table 9: Content-Related Tasks

Task	Who Performs
Installing and Configuring Saba Content on page 115	System administrator and content administrator

Task	Who Performs
Authoring Content on page 116	Content author
Importing Content into Saba on page 116	Content administrator
Modifying Existing Content on page 118	Content administrator or content author
Subscribing to Content on page 117	Catalog administrator
Consuming Content on page 118	Learner
Teaching Classes with Content on page 118	Instructor

Installing and Configuring Saba Content

Broadly speaking, there are two phases to configuring Saba content:

- One-time configuration, which you must perform when you install the product. This does not generally need to be repeated.
- Ongoing configuration, which you might need to perform later.

The one-time configuration is done when Saba is installed. For details on how to install and configure Saba content server, refer to the Install for Saba Content Server guide. Once Saba content is installed, you may need to register Saba content servers. This lets Saba deploy content automatically when you import it. Typically you will configure these content servers when you perform the rest of the configuration; however, you can always register additional Saba content servers at any time.



Note: You may not need to register any Saba content servers at all. Certain content formats (such as AICC and URL) are by definition deployed on their own, non-Saba, servers. When you import these content formats, Saba simply keeps track of the pointer to the external content. If all the content you will use is of those pre-deployed types, you will not need to register any Saba content servers.

Except as noted, all the steps below are performed by a Saba content administrator:

Table 10: Steps for installing and configuring Saba Content

Step	Description
1. Install and configure the Saba product.	This is performed by the Saba administrator. The procedure is discussed in the <i>Install for Saba Content Server</i> guide.
2. Configure a webserver to use as the asset store.	This may be performed by any system administrator. Configure the machine as you would any web server. (It only needs to be accessible to the Saba server, so you may wish to put it behind a firewall.)
3. Register the asset store with Saba.	This is discussed in <i>Configuring the Asset Store</i> on page 134. This task must be performed by a Saba content administrator.
4. Install and configure any neces~ sary content servers.	This may be performed by any system administrator. Configure the machines as you would any other web server. If the machines will serve SCORM content, you must also install the SCORM connector.

Step	Description
	The server must be web-accessible to users who will use content stored on that server. Note: If you are not using Saba-deployed content, you do not need to perform this step or the next step.
5. Register the content servers with Saba.	This is discussed in <i>Configuring Content Servers</i> on page 135. It makes the content server available for deploying and running content. This task must be performed by a Saba content administrator.

Steps 4 and 5 can be performed any time after Saba is installed, and may be repeated later if you add a new content server.

Authoring Content

The first step in providing content to users is to author the content. The content can be authored in a wide variety of formats, with many different tools; indeed, Saba content can be in any format which the learners' browsers can open. Thus, the details of how to author content are beyond the scope of this book. Most content delivered through Saba will be Web content, meaning it can be viewed inside the learner's browser. However, non-Web content can also be delivered. In this case, the learner will simply be prompted to download the content and run it locally.

A content author does not need to have access to Saba. A content author can write the content, and then provide it to a Saba content administrator or catalog administrator to import into Saba (as discussed below in *Importing Content into Saba*). Of course, a content author is very often also a content or catalog administrator, and will perform both tasks.

Step	Description
1. Write the content.	Use an appropriate authoring tool to generate the content. If the content is standards compliant, you may wish to take into account how Saba will roll up lesson results to produce a score for the content item. This is discussed in <i>Content Scoring</i> .
2. Deploy or package the con-tent.	If the content is of a type that Saba deploys (such as Packaged SCORM or File con~tent), assemble the content in a single location. If the content is deployed manually (such as Deployed SCORM or AICC), deploy it on an appropriate content server. For information about each content type's requirements, see <i>Tracking vs. Non-Tracking Content</i> .
3. Provide content to Saba con~tent administrator.	If the content was deployed on a non-Saba content server, you must provide all ap~ propriate URLs to the content or catalog administrator. If the content will be deployed by Saba, provide the actual content file or package to the content or catalog adminis~ trator.

Importing Content into Saba

Once the content has been prepared, a Saba content administrator can import it into Saba. This places the content in the Saba content repository, where learning offerings can subscribe to it. If the content is of a Saba-deployed type, Saba will deploy it to the content server designated by you.

Before you can import the content, you must have the content package or file (if it is of a Saba-deployed type) or the URLs of the necessary files (if it is of a pre-deployed type).

Step	Description
1. Launch the Saba Repository browser.	In the application toolbar, select Content Administration from the drop-down list, and then click on the Repositories > Production Repository or Knowledge Base . Click on the browse tab.
	The way you organize the repository can make it easier for Saba catalog administrators to find the content they need.
2. Navigate to the appropriate repository folder.	You must select a repository folder to hold the content. You may navigate to an ex- isting folder, or create a new one. Note: The repository folder is strictly an organizational tool; it does not affect what server is used to store the actual content lessons.
3. Run the Saba Import Con- tent Wizard	Click on the Import button to launch the Import Content wizard. Use the wizard to provide content "metadata" (such as its name, format, and security domain), and to provide the actual content file (if it is Saba-deployed content) or the relevant URLs (if it is manually deployed content). This wizard is discussed in <i>Importing and Editing Content in the Production Repository</i> on page 152.
4. Test the content	Once you complete the wizard, you will be shown the new content object's Details page. From this page you can launch the content in the Saba content viewer. (You can test the content at any time by opening its Details page from the Production Repository or Knowledge Base browser.)

Once the content has been deployed, catalog items can subscribe to it. Content in the Knowledge Base is also available to learners for direct consumption, without having to register for a learning offering that subscribes to the content.

Subscribing to Content

Once content has been placed in the Production Repository or Knowledge Base, catalog offerings can subscribe to it. This adds the content to the catalog offering, letting users and instructors launch the content and participate in it.

Before you can begin this step, you must create the catalog offering, as described in the Saba Catalog Administrator Guide.

Step	Description
1. Find and open the catalog item.	From the Catalog Administration role, find and open the catalog item. You can also create a new catalog item; when you save it, Saba automatically opens it for editing.
2. Attach new content	Do this from the Offering Details page, by clicking Learning Assignments > Add Learning Assignments > Attach Content link.
3. Select a content item from the reposititory.	Browse or search the Production Repository or Knowledge Base to find appropriate content item, select it, and then click Finish . Note: You can select multiple content items.
4. Test the content	Once you attach the content to the offering, you can launch the content in Saba content viewer.

Consuming Content

For a learner, taking a class with content is much like taking any other class. You do not need any special privileges or permissions to consume content.

Step	Description	
1. Enroll in the class	Enroll in the class normally, as described in the Learning User Guide and Registrar Guide.	
2. Open the Learning Details page	You can do this by clicking the course name from My In-progress Learning page.	
3. Launch the content module	Course content is listed in the Content Modules section. Each module is designated as <i>Optional</i> or <i>Required</i> ; you must complete all the required modules in order to complete the class.	
4. Complete classwork	When you have finished all course work and required content modules, the instructor can mark you as complete and assign you a grade. If the class is <i>web-based training</i> (WBT), Saba will assign you a grade based on your completion of the content modules.	
	Note: The way Saba calculates a score for the class is discussed in <i>Content Scoring</i> . In some cases, Saba supports defining 'n' out of 'm' content modules as required for completion of a course or offering. For example, if you are required to complete any two out of three 'required' content modules, then Saba marks you complete after you complete any two required content modules.	



Note: Learners can directly consume content in the Knowlege Base, without having to register for learning offerings that subscribe to the content. For more information, see the Learning User Guide.

Support for Sending Content Interaction Data After User Session Time-Out

For content that support runtime tracking capabilities, interaction data for the content can be sent back to the system even if a user's session times out while the user is completing online content in Saba Online Player.

Saba Content utilizes a system-level certificate to connect to the system and send the data. The certificate is owned by the 'Admin' super-user and is automatically created during configuration and startup of Saba Notification Server.

Teaching Classes with Content

If you are an instructor for a class with online content, you can examine the content results for each user. For example, after a user completes a content module which contains a test, you can open the module to see detailed information about the learner's responses to all questions in the test. This can be useful if Saba is unable to assign a completion status or score for a piece of content.

For more information about how Saba assigns scores to content, see *Content Scoring*.

Modifying Existing Content

Once content has been imported, you can make certain modifications to it. It is important to note that some modifications can have side-effects which will affect any offerings that have subscribed to the content; other changes are safe, and can be made whether or not offerings have subscribed to the content.

You can make changes to the content metadata without affecting any subscription. The metadata is all the information you entered when you imported the content, except for the content file or URL itself. For example, when you import the content, you choose a name for Saba to display. You can change this name at any time by editing the content object. If any classes are subscribed to the content, they will automatically switch to the new name.

You can also modify the actual content files which users see. If the content is deployed on a non-Saba server, you can edit the content files directly. If the content is deployed by Saba, you can upload a new content package, and Saba will deploy it. However, this can have unpredictable effects if users are already in progress on the content.

For more information about modifying content, see Notes on Editing Content on page 157.

Tracking vs. Non-Tracking Content

Standards-compliant content (SCORM and AICC) support the ability to track information about the learner's performance and pass that information back to Saba at runtime.

The following table shows which of the content formats supported by Saba provide runtime tracking capability:

Table 11: Tracking and Non-Tracking Content

Content type	Tracking
AICC	Yes
Deployed SCORM	Yes
SCORM Content Package	Yes
IMS Content Package	No
File	No
Zip File	No
Directory	No
URL	No
Offline Content	Yes

Content Scoring

Standards-compliant content typically assigns a status to each lesson in the content. However, the content does not provide an overall status for the whole set of lessons. Similarly, most standards-based content can produce a numerical score for each lesson in a content object, but not a numerical score for the entire object.

Saba can "roll up" content results, combining results information for each lesson into a single overall result. There are two different levels of rollup:

- In micro-rollup, Saba examines the status and numeric score for all the lessons in a content object, and produces a single status and score for the entire content object.
- In macro-rollup, Saba examines the status and score for each content object in a learning offering, and produces a single status and score for the entire offering.



Note: Content may have its own way of calculating the score for an individual lesson. For example, one lesson might be a test, with each question being worth a different number of points. The content might examine the answers to the questions and produce a numeric score for that single lesson. This is done by the content, not by Saba. Saba's micro-rollup begins with the status and scores for the lessons, and produces a status and score for the entire test.

Micro-Rollup

Saba can combine the status and scores of each lesson in a content object, producing an overall status and score for the entire object. Saba does this automatically, as soon as a learner finishes the content. This combined score is made available to the class instructor, who can use it to grade the student. (The instructor can also examine the student's content to see exactly how he completed it.) If the class is Web-based training, Saba can use the content status to produce a status for the entire class, as described in *Macro-Rollup*.

For information about content rollup logic for Saba supported content formats, see:

- AICC and SCORM 1.2 Content Rollup Logic
- SCORM 2004 Content Rollup Logic
- Non-Standards-Compliant Content Rollup Logic

AICC and SCORM 1.2 Content Rollup Logic

When a user completes a lesson in a standards-compliant content, the content reports one of the following six status codes to Saba:

- Complete
- Incomplete
- Passed
- Failed
- Browsed
- Not Attempted

In addition, the content can optionally report a numeric score. If the content reports both a status code and a numeric score, then Saba will ignore the status code, and will simply treat the lesson as having the status *passed* (if the score is equal to or higher than the mastery score) or *failed* (if the score is below the mastery score).

The **Mastery score** is defined in the content metadata at the lesson level and passed at import time.

When a user completes a lesson, Saba attempts to derive a status for the entire object:

- If any lesson is **Not Attempted**, Saba assumes that all lessons have not yet been attempted and assigns the content object a status of **Not Attempted**.
- If all lessons reported a **Passed** status, Saba assigns the content object a **Passed** status.
- If all lessons reported a **Failed** status, Saba assigns the content object a **Failed** status.
- If all lessons reported a Completed status, Saba assigns the content object a Completed status.
- If one or more lessons reported a **Passed** status and the remaining lessons reported a **Completed** status, Saba assigns the content object a passed status.
- If any one or more lessons reported a **Failed** status and the remaining lessons reported a **Completed** status, Saba assigns the content object a **Failed** status.
- In any other situation, Saba assigns the content object an **Incomplete** status.

In addition, Saba averages the scores for each lesson to produce a numerical score for the content.

Macro rollup is triggered when the content object status is either Passed, Failed, or Completed.

Note: Saba only averages the scores that are reported. While calculating the score, Saba discards any lessons with a null value for the score. For example, lessons such as reading assignments have a null value for the score. Reporting a score of zero, instead of null, would wrongly bring down the average. For example, suppose that a lesson has five reading assignments and five quizzes. The lesson should report a null score for the reading assignments. If the lesson reported a score of zero for each reading assignment, and the user got 100% on each quiz, Saba would average all the numbers together and produce a score of 50 for the content object. If the lesson properly reports a null score for the reading assignments, Saba will average the five 100% scores together and produce a score of 100 for the content object.

SCORM 2004 Content Rollup Logic

For SCORM 2004 content, completion is triggered by the sequencing engine according to the SCORM 2004 Sequencing and Navigation (SN) specifications.

SCORM 2004 content provides an overall status and score for the entire set of lessons once the content attempt is complete. An attempt on the SCORM 2004 content is complete when the user exits the content using the "Exit and Finish" option, or the sequencing session is exited normally returning Course Complete or Exit Session status.

Micro rollup to arrive at the content status and score is intrinsically carried out by the sequencing engine. Saba plays no role in this calculation.

If the user exits the content using "Exit and Resume Later" option, the content attempt is suspended; the user can resume the same later.

If the user exits the content using "Exit without saving" option, the content attempt is discarded (or abandoned); the user can start with the fresh attempt next time.

When the content attempt is suspended or discarded, macro rollup is not triggered.

Non-Standards-Compliant Content Rollup Logic

For non-standards-compliant content such as file, directory or URL, Saba marks the content as Complete as soon as it's opened, if sign-off has not been set for the content module in the offering. If sign-off has been set for a non-standards-compliant content module in an offering, then learners need to sign off to indicate that the learner has completed the content.

For example, when the user opens a URL content, Saba marks it as Complete, if sign off has not been set for the URL content module. If sign off has been set, then Saba marks the content complete only after the user signs off on completion of the URL content.

Macro-Rollup

If a learning offering has an instructor, the instructor can examine the content results, as well as non-content information like the student's classroom participation, and determine a score for the entire offering. However, for Web-based training, Saba will attempt to determine the score and status automatically.

Saba's catalog administrators can define a *mastery score* for the content package at the offering level. The mastery score impacts the completion status of the content; passed or failed status is derived based on the average score of the learner in the content against the mastery score defined.

When a user has finished all the content in an offering, Saba will try to assign an overall status to the offering:

- If all of the required content modules have a rollup status of passed, Saba will give the offering a status of successful and automatically move it to the learner's transcript.
- If all of the required content modules have a rollup status of *failed*, Saba will give the offering a status of *unsuccessful* and move it to the learner's transcript. On successful completion, the completion status for the offering changes to successful.

In all other cases, Saba is unable to make an automatic evaluation for the status and score of the offering and leaves it in the learner's enrollments. If a learner has met the offering's requirements, the learner could mark the offering complete, if the learner has the privileges to do so. Also, if the appropriate business rule is enabled, the learner's manager can mark the offering complete.

Using Content for Evaluations

There are two different ways content might be used in an offering. Usually, content is part of the offering itself-the user participates in the content in order to learn material and to measure how well he has mastered it. A learner's score on this content measures how well the student is doing in the course, and affects his grade.

However, sometimes you may want to use content to gather feedback from the learners about the quality of the offering. In such situations, you can use content for evaluations. Evaluation content is not scored. Evaluation content passes back results information reflecting the learner's responses to questions. This information is aggregated and analyzed using predefined reports that are available to catalog administrators and instructors.

Chapter

11

Content Formats

Topics:

- Supported Content Formats
- AICC-Compliant Content
- SCORM-Compliant Content
- IMS Packages
- Files
- Zip Files
- URLs
- Saba Offline

Content can be imported into Saba in a wide variety of formats. This chapter describes the various content formats which are supported by Saba and describes how each content format is deployed.

Supported Content Formats

Saba supports the ability to capture, manage, and deliver content provided in all of the following content formats:

Table 12: Supported Content Formats

Content Format	Description	
AICC	Content designed in compliance with the AICC AGR-010 guidelines. The content can be imported either as a URL or using the four AICC course structure files specified for Level I compliance.	
	For more information on AICC content, see <i>AICC-Compliant Content</i> .	
Deployed SCORM	Content described using the SCORM 1.2 or SCORM 2004 specification. Deployed SCORM content can be imported as a URL pointing to an IMS Manifest file. This file is a manifest for a content package, but does not itself contain the actual content resources. Rather, the manifest contains URLs for the content resources, which must already have been deployed on to a content server machine.	
	For more information on SCORM content, see SCORM-Compliant Content.	
SCORM Package	Content packages that are compliant with the SCORM 1.2 or SCORM 2004 specification. The content package must be imported as a ZIP file. Saba Content unpacks the file, reads the IMS manifest, and deploys the content to a registered content server (see "Configuring Content Servers" on page 12-6).	
	For more information on SCORM content, see SCORM-Compliant Content.	
IMS Package	Content packages that are compliant with the IMS Content Packaging Version 1.1.3 specifi~cation. The content package must be imported as a ZIP file. Saba Content unpacks the file, reads the IMS manifest, and deploys the content to a content server.	
	For more information on IMS Packages, see IMS Packages.	
File	Any miscellaneous file format which can be read by users' machines (such as a Word or PDF document, a video clip, or an image).	
	For more information on importing raw media files, see <i>Files</i> .	
Zip File	Any group of files in a directory structure (such as an HTML site, content source files, or project files) can be packaged into a ZIP file and stored in the repository. These files are un~packed onto a content server during import.	
	For more information on importing directories of files, see <i>Zip Files</i> .	
URL	Any URL pointing to an external content resource can be imported into the repository.	
	For more information on importing URLs, see <i>URLs</i> .	
Saba Offline	This format is used to import content published to an offline delivery format by Saba Publisher. This should not be confused with the ability to download and run SCORM 1.2 packages using the Saba offline player.	
	For more information on offline content, see <i>Saba Offline</i> on page 131.	

Content Format	Description
Centra Recording	This format is used to import Centra recordings into the content repository.

Deployed Content

Different content formats are deployed differently. When you import any content, Saba stores information about the content in the Saba Content repository, but not the content itself:

- If you upload any files when you import the content, the files are stored in the asset store. The asset store provides backup security and is also used for import processing.
- If you upload files for Saba to deploy, Saba deploys the content on the content server that you designate. (Saba may transform the content in some way; for example, it might expand a ZIP file which you upload, and deploy the resulting files on the content server.)
- Some content formats must be deployed on a non-Saba Content server. In these cases, you will provide a link to the content (such as a URL), but the content will remain on the external server. Saba will not store any files in its asset store or content servers.

Table 13: How Content Formats are Deployed

Content Format	Information stored in Saba Content Repository?	Deployed to a Saba Content Server?	Deployed to a Non-Saba Content Server?
AICC	Yes	No	Yes
Deployed SCORM	Yes	No	Yes
SCORM Package	Yes	Yes	No
IMS Package	Yes	Yes	No
File	Yes	Yes	No
Zip File	Yes	Yes	No
URL	Yes	No	Yes
Saba Offline	Yes	No	No
Centra Recording	Yes	No	Yes

Smart Deployment of Content

Saba provides the ability to deploy content package to a content server optimally. The deployment uploads the package file to the content server and the deployment action takes place on the content server. This improves the performance of content import.

The following content formats are supported:

- **SCORM Package**
- **IMS Package**

Zip File

The content is uploaded using upload protocols such as FTP or WebDAV. When the content is uploaded, the package zip file is upzipped and then deployed on the content server.

Smart Deployment Process

Smart deployment of content involves the following steps:

- 1. Content is imported into the Content Repository.
- **2.** The zipped content is uploaded to the content server.
- 3. Saba Content Services notifies the Deployment Agent in the content server about the uploaded zipped content.
- **4.** The Deployment Agent unzips and deploys the content on the content server.
- 5. The Deployment Agent sends a response back to Saba Content Services about the deployment.

Smart Deployment Settings

For smart deployment of content, set the following attributes while configuring your content server:

- Select the checkbox **Use Smart Deploy**.
- Specify the Home Directory if the upload protocol is FTP or WebDAV. The Home Directory is the root directory for FTP or WebDAV.

For details about configuring content servers, see .Configuring Content Servers on page 135

AICC-Compliant Content

Saba supports the ability to interoperate with any content designed in compliance with AICC AGR-010 guidelines.

When a learner on Saba launches AICC-compliant content, Saba passes information to the content about the learner, such as profile and preference information and information about any bookmarks the learner might have set during previous visits to the content. When the learner completes a learning session, the content passes results information back to Saba. This information can include completion status, test scores, time spent, and number of attempts. For tests, this information can also include the learner response, result, time spent, and relative weighting for every question on the test. Saba stores this information in the database and provides view access to learners and their managers, as well as instructors.

How is My AICC-Compliant Content Provided?

Saba can interoperate with AICC-compliant content that is provided in either of the following ways:

- as a single URL pointing to the content source
- as a set of course structure files representing a list of lessons, each of which can be launched and tracked independently by Saba

AICC Content Provided as a Single URL

If your AICC-compliant content is provided as a URL, Saba launches and tracks the content as a single entity. The entire content object will have a single status and score.

AICC Content Provided as Course Structure Files

Your content vendor may provide a set of AICC-specified course structure files for AICC-compliant content. The course structure files contain metadata for the course, including a course description, information about the author, version, and creation date of the course, a definition of the course structure including a URL for each of its content elements, and parameters for launching the content over the Web.

If these files are available, Saba can launch and track each content element (e.g., lesson) independently. Learners have the ability to view the content structure from within Saba and launch any content element (e.g., lesson) defined in the structure.

At a minimum, vendors of AICC-compliant content should provide four course structure files with the following file extensions:

.CRS

- .DES
- .AU
- .CST

Note: Some AICC publishers may provide additional course structure files. However, Saba only processes the four files listed above.

Saba uses the information provided in these files to display details of the course structure in the Learning Catalog and to parse out a URL for launching each content element (i.e., lesson) defined in the course structure. When a learner requests a content element (i.e., lesson) from an AICC-compliant course, Saba retrieves the appropriate URL from the database and launches the content by calling the URL via HTTP.

SCORM-Compliant Content

Saba supports the ability to import and interoperate with content designed in compliance with the Shareable Content Object Reference Model (SCORM). SCORM is a specification developed by the Advanced Distributed Learning (ADL) initiative for standardizing the reusability and interoperability of learning content.

When a learner on Saba launches SCORM-compliant content, Saba passes information to the content about the learner, such as profile and preference information and information about any bookmarks the learner might have set during previous visits to the content. When the learner completes a learning session, the content passes results information back to Saba. For tests, this information can also include the learner response, result, time spent, and relative weighting for every question on the test. Saba stores this information in the database and provides view access to learners and their managers.

Currently, Saba supports the following versions of SCORM:

- SCORM 1.2
- SCORM 2004 2nd Edition and 3rd Edition

Overview of SCORM

The SCORM specification addresses two critical but distinct aspects of learning content interoperability:

- Defines an aggregation model for packaging learning content
- Defines an API for enabling communications between learning content and the system that launches it

The key actors in the SCORM model are:

- Learning Management Systems (such as Saba)
- Shareable Content Objects (SCOs)

SCOs are a standardized form of reusable learning objects.

Other actors in the SCORM model are tools that create SCOs and assemble them into larger units of learning.

The following diagram illustrates the conceptual model used by SCORM to define interoperability

Figure 15: SCORM Conceptual Model

Content Aggregation

SCOs are self-contained units of learning. They can be used as building blocks to create larger units of learning (such as courses), but they cannot be broken down into smaller units. To assemble SCOs into a course, three things must be done:

- 1. The SCOs must be found and organized into a structure.
- 2. Instructions must be written that tell the LMS how to deliver the SCOs.
- **3.** The SCOs and instructions must be bundled into a portable package.

This process is called content aggregation. It is important to note that content aggregation can include instructions for navigating between SCOs, but not for navigating within individual SCOs.

A SCORM package contains a manifest file that declares the contents of the package, describes the order in which the SCOs are to be delivered, and tells the LMS where to find the SCOs themselves. The physical resources represented by the SCO can be physically included in the package, or they can be referenced externally by the package.

To make itself and its components more easily discoverable in a large, distributed online environment, a SCORM package can also include metadata records. A package can include metadata records describing the entire package as well as metadata records describing each individual SCO. The metadata used by SCORM is based on the IEEE Learning Objects Metadata (LOM) specification, which defines a library of metadata elements for describing learning objects and is compatible with the metadata used by the digital and online library community. Learning object metadata can include information about the title, author, version number, creation date, keywords, technical requirements, resource types, and educational context and intent of a SCO.

Communicating with Content

Using method calls based on a JavaScript API, SCORM-compliant content can communicate at runtime with any LMS. The SCORM specification defines exactly what pieces of learner information can be exchanged between the content and LMS. This information includes learner profile information, such as the learner's name, the learner's ID, and certain learner preferences (e.g., physical device preferences) as well as results information, such as completion status, test scores, time spent, and number of attempts for each SCO.

In the SCORM model, content initiates all communication. When it is launched, the SCO tells the LMS it has started. When it wants something from the LMS, it asks for it. When it wants to update learner information, it sends the information. And when it is finished, it tells the LMS it is finished. This causes control to be passed back to the LMS, and the LMS decides which SCO will be delivered next.

Additionally, SCORM 2004 content supports the ability to sequence items in a content package and control user navigation actions. This is done by making calls to a runtime sequencing engine provided by Saba.

How Is My SCORM Content Provided?

The SCORM specification is a rapidly evolving document. As the specification changes, it leaves behind legacy content designed in accordance with previous versions. To address this problem, Saba provides support for SOCRM 1.2, SCORM 2004 2nd Edition, and SCORM 2004 3rd Edition.

Information about the version of the SCORM content is present in the IMS manifest file provided with the content. Saba reads this information on import and automatically detects the version of the content. You do not need to specify the SCORM version at import time.

SCORM content can be provided as a package (Zip file) or as a stand-alone IMS manifest file. If provided as a package, it should be imported using the SCORM package format. The assumption here is that all resources required to deliver the content are included in the package and the content files will be automatically deployed to a Saba content server at import time. If provided as a stand-alone IMS manifest file, the content should be imported using the Deployed SCORM format. The assumption here is that the content files have directly been or will be manually deployed to a non-Saba content server.

Hosting SCORM Content

Since SCORM-compliant content is accessed by calling a URL via HTTP, the content must be hosted on a machine with a running Web server. However, SCORM content will not run properly if the Saba server attempts to access it as a client. That is, if you try to launch SCORM content from a browser running on the same machine as the Saba server, the content may not run properly. As long as you are logged into Saba from a browser running on some machine other than the Saba server, you should be fine.

SCORM Conformance Checking

Saba supports two modes for running SCORM content: strict conformance check and loose conformance check. If strict conformance check is enabled for your SCORM version, then the SCORM content must be strictly conformant in order to run when launched by learners. If conformance check is disabled, Saba allows any SCORM content to be run. By default, conformance check is disabled.

To enable conformance checking, Saba provides the following two site-level properties:

- SCORM 1.2 Conformance
- SCORM 2004 Conformance

System administrators can set these site-level properties. For instructions on how to set these site-level content properties, refer to the System Administrator Guide.

Suspend-Resume Behavior of SCORM Content

The exit behavior of SCORM content depends on the value that the SCO sets in its exit command. In accordance with SCORM RTE Specification, for SCORM 2004 content, if the SCO sets cmi.exit to suspend, Saba sets cmi.entry to resume. By setting cmi.exit to suspend, the SCO indicates that the learner has exited with the intent of returning to the SCO at a later time. On the next launch of the SCO, Saba considers it as the resumption of the previously suspended attempt and not a new attempt. Hence, Saba returns the runtime data from the previously suspended learner attempt.

For example, if the SCO sets the lesson location cmi.location as location1 and the exit state cmi.exit as suspend, then, in the next attempt, lesson location is populated with location1, as Saba treats the next attempt as a resumption of the previously suspended attempt. However, if the SCO sets the location as location 1 and exit state cmi.exit as normal, then in the next attempt, the location is populated with the default location, because Saba treats this attempt as a new attempt.

Using SCORM Conformance to alter Suspend/Resume Behavior

Prior to Saba Enterprise 2005, Saba did not support the suspend-resume behavior of SCORM content described in Suspend-Resume Behavior of SCORM Content on page 129. As this is a change in the behavior of content, it is possible that some of the content relying on the earlier behavior will no longer work. Hence, Saba provides a facility by which you could mimic the Saba 5.1 behavior. This is achieved by setting SCORM Conformance property to 0 (relaxed mode).

When the SCORM 1.2 Conformance property is set to 1 (non-relaxed mode), Saba checks all CMI data elements for vocabulary correctness. For SCORM 2004 content, Saba always checks all CMI data elements for vocabulary correctness irrespective of SCORM 2004 conformance mode.

Total Time Computation for SCORM 2004 Content

As per SCORM 2004 specification, if the content lesson is exited in normal mode, the next attempt on the content should be treated as a new attempt and LMS should provide a new set of data model elements. This means, in case of a new

attempt, total time should be initialized to 0. Saba follows this as per the specification, if SCORM 2004 Conformance property is set to 1 (strict conformance).

Table of Contents Visibility for SCORM 2004 Content

As per SCORM 2004 Sequencing and Navigation specifications, based on the sequencing rules defined in the imsmanifest.xml and learner's progress through the content, there might be times when only relevant part of the Table of Contents (TOC) is visible in the Saba player. This might create confusion for the learner taking the content.

Saba provides a site-level property called **Table of Contents Visibility** that defines the TOC visibility during a content attempt. Be default, this property is set to 1, making the TOC always visible during a SCORM 2004 content attempt.

IMS Packages

IMS Content Packaging is a specification developed by the IMS Global Learning Consortium that defines a format for assembling learning resources into portable packages. An IMS package contains a manifest file that declares the contents of the package, specifies the location of each item defined in the package, and provides metadata records describing the package itself and each of the packaged items. The physical resources represented by the items in the package can be physically included in the package, or they can be referenced externally by the package.



Note: SCORM adopts the IMS Content Packaging specification.

Unlike the SCORM and AICC specifications, which define both an exchange format and a communications protocol, the IMS Packaging specification only defines an aggregation format. It says nothing about the ability of the packaged content resources to communicate with the learning management systems from which they are launched. As a result, it is not possible to know whether the content in an IMS package is capable of communicating, except by reading the metadata; thus, the content is treated as non-trackable.

Currently, Saba supports the ability to import and launch IMS packages that are compliant with version 1.1.3 of the Content Packaging specifications.

Files

Any raw media file (such as a Word document, a PowerPoint document, a PDF file, a video clip, an image file, or an executable file) can be imported into the Saba Content repository. On import, Saba Content uploads the specified file into the asset store.

Once imported, raw media files can be published to the Learning Catalog for access by learners, or they can be exported. When a learner accesses a file, Saba launches the file in the user's default browser, and passes the MIME type. The browser takes responsibility for how the content is displayed. For example, a browser might be able to handle certain MIME types on its own (like HTML and text files), and might launch a plug-in or application to display other MIME types (such as PDF documents). In other cases (such as a Zip file or EXE file) the browser will not support the ability to display the content and instead will prompt the learner to download and save to the local machine where the file can be launched using an appropriate application.

Zip Files

Any group of files (such as an HTML site, content source files, or project files) can be packaged into a ZIP file and imported into the Saba Content repository. This can be useful for adding entire web sites into Saba; for example, you might zip up a directory structure containing an entire HTML-based reference manual, and deploy that manual as content

On import, Saba Content unpacks the ZIP file, deploys the contents to the specified content server, and sets up an access URL pointing to the specified start file.

Once imported, packaged directories can be published to the Learning Catalog for access by learners, or they can be exported. When a learner accesses a directory, Saba opens a new browser window and calls the access URL, which points to the specified start file located on the specified content server.

URLs

Any URL pointing to a content resource can be imported into the Saba Content repository and published to the Learning Catalog for access by learners. If your content is available on a webserver, and does not conform to some more specific standard (such as SCORM or AICC), you should import it as a URL.

Saba Offline

Offline content is content that learners can download to a local machine and then take at a time when the local machine is not connected to the Saba application server. This is particularly useful for learners who are either travelling or working on a machine with a dialup connection.

Content authored using Saba Publisher can be published for offline delivery and imported into the Saba Content repository. Saba supports the ability to track and record learner results for offline content generated by Saba Publisher. This is done using AICC-based communications to exchange the results information.

When a learner takes offline content, the content tracks the results of the learner's performance and stores the information in a file on the local machine. Upon completion, the content will automatically place an icon on the learner's desktop for the purpose of submitting results back to Saba. When the learner is reconnected to the Saba network, clicking this icon submits the results information to Saba. Saba stores this information in the database and displays it to learners and their managers through pages in the application interface.



Saba Offline content should not be confused with the ability to download and run SCORM 1.2 packages using the Saba offline player.

Chapter

12

Configuring the Asset Store and Content Servers

Topics:

- Overview
- Configuring the Asset Store
- Configuring Content Servers
- Content Security

This chapter describes how to configure the content asset store for importing content and content servers for delivering content.

Overview

As described in *Content Concepts* on page 111, all content managed by Saba is stored on two different types of servers:

- The *asset store* serves as an archive for uploaded content. All uploaded material is stored there; this lets Saba export exactly the files which were uploaded, if needed. Thus, if content is uploaded as a ZIP archive, the ZIP file would be kept in the asset store. There is only one asset store per Saba site.
 - Note: The Saba application needs to communicate with the asset store, but no other computer does. In particular, when a user views content, the user's browser does not communicate with the asset store. Thus, for example, the asset store can be behind a firewall, as long as it is accessible by the Saba application. However, the asset store must still be accessible via a URL.
- The *content servers* hold the content that is actually served to the user. For example, certain content formats are uploaded as ZIP files, and unzipped when they are deployed. When a user views content, the user's browser connects directly to the content server. You can define as many content servers as you want and Saba will automatically upload and deploy content to the selected content server at import time.

This chapter describes how to configure the Saba asset store and content servers.

Configuring the Asset Store

To configure the asset store, go to the **Content Administration** > **Configuration** > **Server Setup** > **Asset Storage** page. This page contains the **Asset Storage Wizard**, a three-page configuration tool.

- Asset Storage Details on page 134
- Asset Storage Settings on page 134
- Test Asset Storage on page 135

Asset Storage Details

On the first page, you must enter the following information about the asset store:

Table 14: Asset Storage Details

Field	Description
Upload Protocol	Describes how the Saba server can store information in the asset store. This may be either "FTP", "File System", or "WebDAV". You will make protocol-dependent configuration choices on the next page.
Content File Access URL	The URL for accessing the asset store directory. Only the Saba server uses this URL. Note: When the system accesses the stored assets, it fetches them via this URL, using an HTTP connection. Thus, the asset store must be accessible via HTTP. For security reasons, you may wish to configure the asset store's webserver so that <i>only</i> the Saba host machine can access that directory. (This is a good idea if the upload protocol is WebDAV, because WebDAV directories can be altered through HTTP connections.)

Asset Storage Settings

The second page is where you make protocol-specific configuration choices. Thus, the fields you see on this page will vary depending on your asset store's upload protocol.

FTP

File Transmission Protocol (FTP) is a transfer mechanism that can be used to move files between machines that are not connected on the same local Network (LAN).

If your asset store is accessed via FTP, enter the following information:

Table 15: Asset Storage Details: FTP

Field	Description
Hostname	The name of the FTP machine, qualified as necessary.
Port	The port to use for the FTP connection.
Username	A username with FTP access to that directory.
Password	The password for that username.
FTP Directory	The directory on the FTP server where the content files should be stored. (This is a subdirectory of the FTP root.)

File System

The File protocol can be used to transfer files between machines that are connected on the same Local Area Network (LAN).

If your asset store is accessed via the file system, enter the following information:

Table 16: Asset Storage Details: File System

Field	Description
1 '	The full path to the asset store directory. This can be on the Saba host machine, or on some other machine (as long as the directory is accessible through the file system).

WebDAV

WebDAV is a Windows-based protocol for transferring files through an HTTP connection. If the asset store is accessed through WebDAV, you do not need to enter any information on the second page of the wizard; simply click Next to proceed to the third page.

Test Asset Storage

The third page lists the configuration choices you made on the first two pages, and also includes a test link: **Test File** Upload/Request. If you click this link, Saba attempts to write a test file to the asset store (through whichever upload protocol you selected), then accesses it through the URL and compares it with the original file. Saba then reports the results of this test.

If there is a problem with any of the settings, you can click **Previous** to go to an earlier page of the wizard. Otherwise, click **Done** and the changes are saved.

You can modify the asset store configuration once you have defined it, but you can never delete it.

Configuring Content Servers

To configure content servers, go to the Content Administration > Configuration > Server Setup > Content Servers section. From this area, you can search for content servers, modify an existing one, or create a new one.

To search for a content server, go to the Content Administration > Configuration > Server Setup > Content Server page. This displays the content server search page. The search page has two fields:

Table 17: Content Server Search

Field	Description
Name	If you wish, you may enter the first few characters of the content server's name. If you leave this field blank, Saba returns all servers of the specified upload protocol.
Upload Protocol	You must select an upload protocol from this menu. Saba returns only those content servers which use the specified protocol.

When you have made your choices, click Search. Saba returns all matching content servers.

To edit an existing content server, click its content server link; this takes you to the Content Server wizard.

To delete an existing content server, click the **Delete** icon.



Note: Saba does not remove content from the content server, even when the corresponding content object has been deleted from the repository. As a result, the contents of the content server directory may grow large if you frequently add and remove content objects.

To create a new content server, go to the Content Administration > Configuration > Server Setup > Content Server page. Click on New Content Server link.

Using the Content Server Wizard

To create or modify a content server, use the **Content Server** wizard. The wizard is divided into three pages:

- Content Server Details on page 136
- Content Server Settings on page 138
- Test Content Server on page 139

Content Server Details

On the first page, you must enter the following information about the content server:

Table 18: Content Server Details

Field	Description
Name	A descriptive name for the content server.
Upload Protocol	Describes how the Saba server can store information in the content server. Select one of the following: from the drop-down list:
	 FTP File System WebDAV You will make protocol-dependent configuration choices on the next page.
Content File Access URL	The URL for the content server directory.

Field	Description
	Note: When users view the content on this server, their browsers make an HTTP connection to the content server directory. The content server machine must be accessible to them over the internet or intranet.
	If the Is a secure server checkbox is selected, then the URL must include the file store and application instance elements in its path, in the following format:
	http(s):// <server_name>:<server_port>/gatekeeper/</server_port></server_name>
	where <server_name> is the name of the secure server and <server_port> is the port number of the secure server.</server_port></server_name>
	For example,
	http://content:50/gatekeeper/
Content Application	The URL of the content server application deployed on the content server.
Base URL	Specify the Content application base URL in the following format:
	http(s):// <server_name>:<server_port>/<context>/scorm_launch</context></server_port></server_name>
	where <server_name> is the name of the content server and <server_port> is the port number of the content server. If there is a context in which the content server solution has been deployed, then specify that.</server_port></server_name>
	For example:
	http://venus:7001/scorm_launch
Description	An optional text description of the content server.
Is a secure server	Select this checkbox if the content deployed on the content server is to be accessed in secure mode.
	All content objects deployed on the content server will inherit this property and will be accessed in secure mode.
	Note: Changing this attribute for a content server, affects already imported content objects.
	For more information about secure content servers, see <i>Secure Content Server</i> .
Is default server	Select this checkbox to set this content server as the default content server.
Use Smart Deploy	Select this checkbox if the content deployment should use the smart deploy method where the content file is uploaded to a content server. The content is then unzipped and deployed on the content server.
	For the following content formats, smart deployment improves the performance of content deployment in a distributed environment:
	SCORM PackageIMS Content PackageZip File
	For more information about smart deployment, see <i>Smart Deployment of Content</i> on page 125.

Content Server Settings

The second page is where you make protocol-specific configuration choices. Thus, the fields you see on this page will vary depending on your asset store's upload protocol.

FTP

File Transmission Protocol (FTP) is a mechanism for transferring files between computers that are not connected on the same Local Area Network (LAN).

If your content server is accessed via FTP, enter the following information:

Table 19: Content Server Settings: FTP

Field	Description
Hostname	The name of the FTP machine, qualified as necessary.
Port	The port to use for the FTP connection.
Username	A username with FTP access to that directory.
Password	The password for that username.
Home Directory	The root directory for FTP. Note: You must specify this field if you have selected the Use Smart Deploy checkbox.
FTP Directory	The directory on the FTP server where the content files should be stored. (This is a subdirectory of the home directory or FTP root.)

File System

The File protocol can be used to transfer files between computers that are connected on the same Local Area Network (LAN).

If your content server is accessed via the file system, enter the following information:

Table 20: Content Server Settings: File System

Field	Description
1 2	The full path to the content server directory. This can be on the Saba host machine, or on some other machine (as long as the directory is accessible through the file system).

WebDAV

WebDAV is a Windows-based protocol for transferring files over an HTTP connection.

If your content server is accessed via WebDAV, enter the following information:

Table 21: Content Server Settings: WebDAV

Field	Description
Home Directory	The root directory for WebDAV.

Field	Description
	Note: You must specify this field if you have selected the Use Smart Deploy checkbox.

Test Content Server

The third page lists the configuration choices you made on the first two pages, and also includes a test link: **Test File** Upload/Request. If you click this link, Saba attempts to write a test file to the content server (through whichever upload protocol you selected), then accesses it through the URL and compares it with the original file. Saba then reports the results of this test.

If the SCORM Launch servlet is installed, you can test the ability to launch SCORM content by clicking Test SCORM Runtime. Again, Saba will launch a second window with the results of this test. (If you will not be deploying SCORM content to this server, you do not need to test SCORM launch.)

You can test smart deployment of content by clicking the link **Test Smart Deployer**. Saba launches a second window with the results of this test. This link is only displayed if you have selected the checkbox Use Smart Deploy on the Content Server Details page.

If there is a problem with any of the settings, click **Previous** to go to an earlier page of the wizard. Otherwise, click **Done** to save the content server settings.

Troubleshooting SCORM Content

When running SCORM content, if the callback from the content fails with a General Exception, followed by a Not Initialized error, this may be a result of the content tracking certificate not having been generated. The certificate should have been generated as part of the installation and configuration of the Saba Content Server where the content is hosted.

To correct this problem, on the first run of SCORM content from the content server, the password for the Saba admin user must be set to welcome. This generates a certificate needed for content to launch and report progress tracking back to the application server.

Content Server User Association

Content Administrators can associate content servers with users. When a user contributes content to the system, the content is deployed on the user's content server. If no content server is associated with a user, then the content is deployed on the default content server.

To associate a content server with a user:

- 1. Navigate to Content Administration > Configuration > Server Setup > Content Servers. The content server search page is displayed.
- 2. Enter you content server search criteria and click Search. All content servers matching your search criteria are displayed.
- 3. Click the User Association link for the content server that needs to be associated with users. The User Content **Server Association** page is displayed, lising all users that are associated with this content server.
- 4. To associate a user with the content server, click Add. The Search Person, Internal pop-up page is displayed.
- **5.** Enter your people search critera and click **Search**.
- 6. From the search results, select the users that need to be associated with the content server, and click Select. All selected users are associated with the content server.



Note:

One user can only be associated with a single content server. When a user is associated with a content server, any existing content server association for the user is removed. For example, user Joe George was associated with content server A. Now if you associate Joe George with content server B, then the existing association of Joe Goerge with content server A is removed. Now only content server B is associated with Joe Goerge.

To remove content server association for a user:

- 1. Navigate to Content Administration > Configuration > Server Setup > Content Servers. The content server search page is displayed.
- 2. Enter you content server search criteria and click **Search**. All content servers matching your search criteria are displayed.
- **3.** Click the **User Association** link for the appropriate content server. The **User Content Server Association** page is displayed, lising all users that are associated with this content server.
- 4. To remove the content server association for a user, select the user and click **Delete**.

Content Security

Content security is a major concern for organizations that use Saba to disseminate highly sensitive information. To protect this information, the content server needs to be highly secure.

The following features provide the necessary content security:

- Content Delivery under SSL
- URL Reuse Prevention

Content Delivery under SSL

The Secure Sockets Layer (SSL) security protocol provides data encryption, server authentication and message integrity. Content delivery using the HTTPS protocol (HTTP over SSL) ensures content security.

Content can be delivered in a secure mode, not only when Saba Web Server is SSL-enabled, but also when the content server is SSL-enabled.

For more information about installing and configuring content delivery under SSL, see *Installing Saba Remote Content Server*:

For Saba-specific configuration to support SSL between the client browsers and the web server, see the Saba System Administrator Guide.

URL Reuse Prevention

Since the content server is basically just a web server, a user who has access to content can capture the URL of the content from the browser properties window and distribute the URL for unauthorized reuse of the content. This causes the following security threats:

- Sensitive information may be stolen, thus causing business losses to the organization.
- A person who does not have the requisite qualifications to take a test, may use the help of another employee or customer to gain a transcript or certification record in Saba.

Saba provides the secure content server technology that prevents URL reuse.

Secure Content Server

The secure content server technology uses a proxy server called a *Gatekeeper* deployed between the client browser and the content server that stores the content. The content server has an access list entry that prevents it from serving the requests from any machine other that the one used for running a secure content server. This ensures that all the requests are served through a secure content server, which is responsible for authentication and authorization.

A secure content server can be hosted on the same machine as the one on which the content server is hosted, or on any other machine. For hosted content, Saba recommends that you host secure content servers on a separate machine.

Secure content servers may retrieve files not only from the underlying web server, but also from a file system. This is advisable for performance reasons, although it might not be advisable for certain configurations like third party hosted content or content assessed via an edge server in CDN configuration.

The functions performed by the various components in a secure content server environment are as follows:

Component	Function		
Content server	 Stores content Serves content to secure content servers 		
Secure content server (gatekeeper)	 Performs authentication Serves content to client 		
Saba application	Creates secure launch URLs		
Client Browser	• Launches secure URLs		

When a learner launches secure content, the URL goes through a secure content server, and the actual content URL is never displayed on any page.

For detailed instructions on installing and configuring secure content servers, see the *Install Guide* for Saba Content Server.

Security Context

Each content object has same number of assets such as HTML files, Flash animation, gif images etc. associated with it. An authorized user can access these assets, but should not be able to access any other asset on the content server. The top directory of the content object, where all the assets of this content object can be found is called the security context.

For example, if the content is located at:

http://server1/gatekeeper/content50/app1/Course1/index.html

then the security context is

http://server1/gatekeeper/content50/app1/Course1/

The security context for various content formats is defined as follows:

Content Format	Rules to define Security Context		
Deployed SCORM	The directory where imsmanifest.xml file is located.		
AICC, URL	Cannot be derived automatically. Should be set up manually by the content admin-istrator.		
SCORM Package, IMS Package, Directory	The security context is inherited during import and cannot be viewed or changed by the content administrator.		

Chapter

13

Configuring Saba Player Templates

Topics:

- Overview
- Managing Player Templates
- Associating Content with a Player Template
- Player Themes

This chapter describes how to configure Saba Player templates.

Overview

Player templates provide uniformity to the look and feel of content delivered through the system. They control the visual presentation of the Online Player during runtime. These templates enforces a level of standardization for content delivered using Saba Online Player.

You can create you own player templates with a choice of color and font, choice of header and footer location, and option to display or hide the navigation bar and table of contents.

You can configure player templates and associate them with content. Content administrators and content developers associate player templates with content while:

- Importing content into the Production Repository or Knowledge Base.
- Publishing content to the Production Repository or Knowledge Base using Saba Content Manager

Saba provides the following pre-defined templates:

- System Defined template: It displays the table of contents and navigation controls.
- Empty Player template: This template does not display the table of contents or any navigation controls.

While publishing content or importing content, you can associate any one of the player templates with content. In the player template field, use the picker to select the player template.

Managing Player Templates

You can configure you own player templates and manage them. You can associate these player templates with content, hence providing control on the look and feel of content during the runtime experience.

For detailed information, see:

- Creating a Player Template on page 144
- Finding a Player Template on page 145
- Editing a Player Template on page 145
- Deleting a Player Template on page 145
- Preview a Player Template on page 146

Creating a Player Template

You can define your own player templates and associate them with content. You can choose from a range of color, font, and have the option to display or hide the navigation bar and table of contents. You can also define the size of the player templates.

To create a player template:

- 1. Go to Content Administration > Configuration > Templates & Themes > Player Templates page.
- 2. Click New Player Template. The New Player Template page is displayed.
- 3. Enter the Name of the player template.
- **4.** Select its **Security Domain** using the finder.
- 5. Define the **Height** and **Width** of the player template.
- **6.** Select the player **Theme** using the finder. The theme defines the color scheme and font of the player.
- 7. Define the width of the table of contents in the **TOC Width** field.
- **8.** Click **Save**. The **Edit Player Template** screen is displayed. You can modify the properties of the player template, and customize the player header and footer. For details, refer to *Editing a Player Template*.
- 9. Click Save again, if you have modified the player template after creating it.

Once you save the changes, you can preview the player template by clicking the **Preview** button.

Finding a Player Template

When a player template is created, its security domain is defined. You can find only those player templates that reside in the security domain that you have access to.

To find a player template:

- 1. Go to Content Administration > Configuration > Templates & Themes > Player Templates page.
- 2. Click Search. It displays all the player templates that you have access to.

To select a template and view its details, click on the player template link.

Editing a Player Template

You can edit existing player templates. Before you edit a template, you must find the template. For information on finding templates, refer to Finding a Player Template on page 145. After you find the template, click on its link to edit it. This displays the **Edit player Template** page. From this page, you can do the following:

- Click on the **Template Details** tab to modify any of the following fields:
- Name
 - Height
 - Width
 - Theme
 - · TOC Width
 - · Security Domain
 - Description
- Select the following check boxes to alter the player interface:
 - · Is Default
 - Show Table of Contents
 - **Show Navigation Controls**
 - · TOC Scrollable
 - Close Player on SCORM 1.2 content completion
 - Use Auto Navigation for SCORM 1.2 Content
- Click the **Customize Header** tab to modify any of the following:
 - Select **Display Header** check box if the player must display a header.
 - · Modify the header by editing the HTML code. If you need to restore any of the changes that you made, click the Use Default button.
- Click the **Customize Footer** tab to modify any of the following:
 - Select **Display Footer** check box if the player must display a footer.
 - Modify the footer by editing the HTML code. If you need to restore any of the changes that you made, click the Use Default button.
- · Click Save.

You can view the changes that you have made to the player template by clicking on **Preview** button to preview the player template.

Deleting a Player Template

You can delete a player template if it is not associated with any content. Also, the player template must reside in the security domain that you have access to.

To delete a player template:

- 1. Go to Content Administration > Configuration > Templates & Themes > Player Templates page.
- 2. Click **Search**. It lists all the player templates that you have access to.
- 3. Click on the **Delete** icon (actions column) of the template that you want to delete.
- **4.** The delete confirmation pop-up screen is displayed. Click **OK**.

Preview a Player Template

You can preview player templates. It gives a visual presentation of the player during runtime.

To preview a player template:

- 1. Go to Content Administration > Configuration > Templates & Themes > Player Templates page.
- 2. Click Search. It displays all the player templates that you have access to.
- 3. Choose the required player template and click on its link. It displays the Edit Player Template screen.
- **4.** Click on the **Preview** button.

Associating Content with a Player Template

All content stored in the Production Repository and Knowledge Base must be associated with a player template for runtime delivery.

Content administrators and content developers associate player templates with content as follows:

- From Saba Content Administration, while importing content into the Production Repository or Knowledge Base.
- From Saba Content Manager, while publishing content to the Production Repository or Knowledge Base.

While importing or publishing content, the **Player Template** field is populated with the default player template. You can change the template using the Player template picker.

For assessment content, Saba recommends that you use a player template that does not have navigation controls (such as the Empty Player template). Assessment content is a self-contained module and does not need any navigation controls from the player for the user to interact with the content. When the user finishes the content, they click the **Close** icon to close the player window.

See also:

- Setting a Player Template as Default
- Previewing Content using a Player template

Setting a Player Template as Default

You can configure and set any player template as the default template. While importing or publishing content, the Player Template field is pre-populated with the default player template.

To set a player template as default:

- 1. Go to Content Administration > Configuration > Templates & Themes > Player Templates page.
- 2. Click Search. It displays all the player templates that you have access to.
- 3. Click on the link of the player template that you want to set as default. It displays the **Edit Player Template** screen.
- 4. Select Is Default check box.
- 5. Click Save.

During import of content into the Production Repository or Knowledge Base, the default player template is associated with the content.

Previewing Content using a Player template

You can preview content using a player template of your choice.

To preview content using a player template:

- 1. Open the content inventory object in the Production Repository or Knowledge Base.
- 2. In the Content Inventory Details page for the selected object, the Player Template field displays the default player template. Click on player template finder to select a player template of your choice.
- 3. Click Save if you have selected a different player template or made any changes on this page.
- 4. Click Preview Content.

The content is displayed using the player template that you chose. In preview mode, you cannot track the content.

Player Themes

A player theme is a set of unified design elements and color schemes player elements such as links, text, fonts, etc. Each player template is associated with a particular theme; the theme specifies what typefaces should be used in the player template, what colors, and other graphic properties.

The application ships with a single default online player theme which cannot be edited or deleted. If you wish, you can create additional themes. Themes are managed from the Content Administration > Configuration > Templates & **Themes > Player Themes** page. From this page, you can perform the following operations:

- Copying a Theme
- Editing a Theme
- Deleting a Theme

Copying a Theme

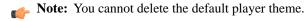
To duplicate a theme, click its **Copy** link. This creates a new theme with the same settings as the original. You can then edit the new theme to make any customizations you want.

Editing a Theme

To view or edit a theme's settings (including its name), click on its name. Saba opens the Theme Details page for that theme. This page displays all the property settings for the theme; these settings specify the typeface, color, style, etc., of text and graphic elements for players which use this theme. If this is the default theme, the properties will be read-only; otherwise, you can change any of the theme settings by typing new values in the appropriate fields. Once you modify the player theme, click Save.

Deleting a Theme

You can a delete player theme if it is not used by any player template. To delete a theme, click its **Delete** icon.



Chapter

14

Managing Content

Topics:

- Overview
- Working with the Production Repository
- Importing and Editing Content in the Production Repository
- Configurable Content Completion Trigger Point
- Diagnostic Tool for Content Communication
- Content Runtime Error Logs
- Learner Communication Logs
- Content Compliance Testing Tool
- Viewing Content Results
- Content States
- Subscribing to Content
- Consuming Content
- E-Signature for Auditing Content Completion
- Sign Off Capability for Content Modules in an Offering
- Purging Content Inventory Items

This chapter covers how to work with content in the repository. It describes how to navigate through the repository, upload content, and attach it to a learning object.

Overview

Saba stores and manages content in a *Production Repository* and *Knowledge Base*. They are an hierarchy of folders containing the various content objects which have been imported into Saba. The Production Repository and Knowledge Base make it easier to find the content you may be looking for.

There are two steps in attaching content to a learning event:

- 1. You must first *import* the content to Saba. Depending on the type of content being imported, it will either be deployed by Saba onto a content server or manually deployed onto a content server. The content server is where the content is hosted for access by users. When you import the content, you must choose a location for it in the Production Repository or Knowledge Base.
- **2.** A learning offering must then *subscribe* to the content. This associates the content with that learning offering, so users who are enrolled in the offering can take the content. When you subscribe to content, you must locate the piece of content in the repository.

If a user is participating in a learning offering which contains content, Saba presents a link to the user. When the user clicks on the link, Saba launches its content player and displays the appropriate content.

You can import the same piece of content several times, resulting in several different copies of the content in the repository. You might do this if you need to put the content on more than one content server.

Note: Several different learning offerings might subscribe to the same piece of content. In that case, if you edit the content, that will affect all the learning offerings which are subscribed to it.

Working with the Production Repository

To view the Production Repository, navigate to the **Content Administration** > **Repositories** > **Production Repository** page. From this page, you can choose two ways of viewing the repository:

- You can browse through the repository as a folder hierarchy.
- You can search for a specific content object.

Browsing the Production Repository

To browse through the production repository, open the **Content Administration** > **Repositories** > **Production Repository** page, and click the **Browse** tab. The production repository is displayed as a folder hierarchy. From this page, you can perform the following actions:

Action	Procedure
Expand a folder, showing its contents	Click the Expand icon (plus sign).
Close a folder	Click the Collapse icon (minus sign).
Open a content object or folder for editing	Click the content object link.
Add a new content object	Select the folder where you want to import the content and click the Import link.
Create a new folder	Click the parent folder's New Sub Folder link.
Delete a content object or folder	Click its Delete icon (actions column). Note: Only empty folders can be deleted.

Action	Procedure
Edit a folder	Select the folder and click the Edit Folder link.

You can browse the folder hierarchy by opening folders until you find the content object you want to use.

Searching the Production Repository

To search for a particular content object, open the Content Administration > Repositories > Production Repository page, and click on the **Search** tab. You can search by any or all of the following criteria:

Search Field	Description
Name	Name of the content object. Enter the first few characters of the content object name. The search finds all content objects that start with the string you enter.
Content format	Content format of the content object. Select a content format the from drop-down list of system-supported content formats.
Available from >= Available from <=	The date range in which content is available for subscription by a learning offering. Use the date picker to populate these fields. For example, to find content that was available for subscription in the month of January 2009, enter the date range as 01/01/2009 to 01/31/2009.
Folder Name	The folder within the production repository where you want to search for the content.
Version number	The version number of the content. The search displays all content that match the specified version number.
Status	The status of the content. For example, content that published, content on hold, content that has expired or content that is purged. Select the status from the drop-down list.
Language	The language in which the content is published. Enter the first few characters of the language. The search finds all content objects that start with the string you enter.
Keywords	The keyword associated with the content. The keyword is a metadata used to classify the content. Enter a string of characters contained in the author's name. The search finds all content objects that contain the string you enter.
Author	The author of the content. Enter a string of characters contained in the keyword. The search finds all content objects that contain the string you enter.
Competency	The competency associated with the content.

Enter your search criteria and click **Search**. If you enter more than one criteria, the search returns only those content objects which match *all* the criteria you entered. If you leave all fields blank, the search returns all content objects.

The search results are displayed in a table (possibly across several pages). The table displays metadata information about content returned in the result set. You can modify the table to change the display fields. You can edit a content object by clicking on its link. You can delete a content object by clicking its **Delete** icon (actions column).

Importing and Editing Content in the Production Repository

You can import content into the Production Repository using the import wizard. To launch the import wizard, open the **Content Administration** > **Repositories** > **Production Repository** page, navigate to the folder where you want the content to be stored, and click the **Import** link.

The import wizard has two steps:

- Step 1: Enter Content Details
- Step 2: Import Content

You can also edit existing content by clicking on its link in the **Production Repository** page. This brings up a page showing all the details of the content, including a list of learning offerings which subscribe to it; in addition, you can preview the content by clicking the **Preview** link.

Step 1: Enter Content Details

On this page, you provide general information about the content (information which does not depend on the content format). Enter the following information:

Table 22: Import Content Wizard: Content Details

Field	Description	
Name	A name for the content object.	
Security Domain	The security domain for the content object. To enter a security domain, click the "picker" icon.	
	Note: Users will not be allowed to use the content object unless they have permission to access the specified security domain. To make the content available to all users, choose the "world" domain.	
Content Format	Choose the content format from the drop-down list. On the next page of the wizard, you will enter information specific to the content format you choose.	
Player Template	The player template used to launch the content.	
	By default, the System Defined player template is used. Use the picker to choose a different player template.	
	For more information on player templates, see <i>Configuring Saba Player Templates</i> on page 143".	
Content Type	Choose the content type from the drop-down list.	
	This field is optional.	
Version Number	The version number for the content. The imported content will have the specified explicit version number associated with it.	
	This field is optional.	
Expiration Date	The date on which the content will expire. The imported content will not be available for sub~scription. However, content that is already associated with an offering, can be consumed by users after the expiration date.	
	After this date, the content will have a status of expired .	
	This field is optional.	
Parent Folder	The folder within the repository where the content is imported.	
Content Provider	The name of the content vendor that provides content. Select the name of the content vendor from the drop down list of content providers configured in the Saba system.	
	This field is optional, and applicable only if the OLSA Integration functionality is enabled by your system administrator.	
Delivery Vendor	Choose the delivery vendor from the drop-down list. If you select Saba as the delivery vendor, then the content plays inside the Saba player. If you choose Native as the delivery vendor, the content plays in a native player (such as the Internet Explorer browser) or the content can be downloaded and played using an associated application. Note: Secure content servers do not support Native delivery vendors.	
	11000. Secure content servers do not support tradive denvery vendors.	

When you have entered the required information, click Next.

Step 2: Import Content

On the **Import Content** page, you provide content format-specific information about the content you are importing. You would provide the location of a file or directory that you want to upload to the content store. In addition, you may provide information for any additional data fields defined by your system administrator.

After entering all the necessary information, click **Import** to upload the content to the Saba content store. Once you finish importing the content, Saba shows you a summary page describing the content object. In addition, you can preview the content in the Saba content browser by clicking the **Preview Content** link from this page.

Once you have imported the content (assuming it has not passed its expiration date), learning offerings can subscribe to it (making it available to learners).

Importing Secure Content

To protect the security of sensitive information, content can be delivered over secure content servers. For more information about secure content servers, see *Secure Content Server* on page 140.

For content formats that are manually deployed, you must indicate whether the content is being delivered from a secure content server at the content inventory level.

To deliver the content in a secure mode, select the **Deployed on secure server** check box and enter the **Security context.** This applies to the following content formats:

- AICC
- Deployed SCORM
- URL
- File

For content formats that are automatically deployed to a Saba content server, the system will automatically determine whether the content server is defined as secure. Thus, for these content formats, the **Deployed on secure server** check box and **Security context** field are not displayed on the **Import Content** page. This applies to the following content formats:

- SCORM Package
- IMS
- Directory

Importing Various Content Formats

Saba Content supports the following content formats:

- AICC
- Deployed SCORM
- SCORM Package
- Zip File on page 156
- File
- IMS Package
- Saba Offline
- URL
- Centra Recording on page 157

The sections below describe how to import each content format. For more information about the various content formats, see *Tracking vs. Non-Tracking Content* on page 119.

AICC

To import AICC content, enter the following details on **Import Content** page.

- Select the radio button for URL or Course Structure Files depending on how your AICC-compliant content is provided.
 - If your content is provided as a URL, select the URL radio button, and enter the full URL name.

If the content is provided as four AICC course structure files (*.AU, *.CRS, *.CST and *.DES), select Course Structure Files radio button and click the browse button to select each of the files into the appropriate fields.

To import AICC content using course structure files as secure content, see *Importing Secure AICC Using Course* Structure Files on page 155.

Note: All the course structure files should have the same file name.

- 2. Optionally, enter the **Absolute URL**.
- 3. Select the **Deployed on secure server** check box, if the content is to be delivered in a secure mode.
- 4. Enter the security context for secure content if the **Deployed on secure server** check box is selected.
- 5. Check the Use AICC Bridge check box to indicate whether the AICC Bridge has been installed on the content server where the content is hosted. For more information about AICC Bridge, refer to Installing Saba Remote Content Server.
- **6.** In the **Other Information** section, enter data for any additional fields configured by your system administrator.
- 7. Click Import.

Importing Secure AICC Using Course Structure Files

You can import AICC content on a secure content server using course structure files by doing one of the following:

Modify the file name field in *.au file so that it uses a URL pointing to the file store on a secure content server to access the deployed AICC content. The URL would be of the format:

```
http://<secure_content_server_name>:<secure_content_server_port>/gatekeeper/
<relative_path_to_file_store>/<aicc_start_html_file>
```

Modify the file name field in *.au file to contain the AICC start html file name only and then use the following value for the absolute URL field on **the Import Content** page:

http://<secure_content_server_name>:<secure_content_server_port>/secure_content_server/ gatekeeper/store_id/app_id/<relative_path_to_file_store>

Deployed SCORM

If you are importing SCORM content which is already deployed on an appropriate content server, choose **Deployed SCORM** as the content type on the **Content Details** page. Enter the following details on the **Import Content** page.

- 1. In the Manifest Access URL field, enter a URL pointing to the IMS Manifest file already deployed on the content server.
 - **Note:** The SCORM Launch servlet must be installed on the content server machine.
- 2. You may optionally provide the content's launch URL; if you do not, Saba will find this URL from the manifest.
- 3. Select the **Deployed on secure server** check box, if the content is to be delivered in a secure mode.
- 4. Enter the security context for secure content if the **Deployed on secure server** check box is selected.
- 5. Click the E-Signature Required check box to indicate whether an e-signature should be required to audit completion of the content by each learner.



Saba does not support e-signatures for SCORM 2004 edition 2 and edition 3 content.

- **6.** In the **Other Information** section, enter data for any additional fields configured by your system administrator.
- 7. Click Import.

SCORM Package

If your content is provided as a SCORM package (ZIP file), choose SCORM package as the content type on the Content **details** page. In the **Import Content** page, enter the following details:

- 1. In the **Zip File** field, use the browse button to select the package file to import.
 - Note: The package file must be in ZIP format.
- 2. In the **Content Server** field, use the picker to select the content server onto which you want to unpack the content package.

For information about defining content servers, see *Configuring Content Servers* on page 135.

- Note: The SCORM Launch servlet must be installed on the content server machine.
- 3. Click the **E-Signature Required** check box to indicate whether an e-signature should be required to validate completion of the content by each learner.
 - Note:

Saba does not support e-signatures for SCORM 2004 edition 2 and edition 3 content.

- **4.** In the **Other Information** section, enter data for any additional fields configured by your system administrator.
- 5. Click Import.

Saba imports the package into the asset store and then extracts all files and deploys them to the specified content server.

Note: SCORM Package content can be made available for offline consumption by selecting the **Available Offline** check box on the content inventory details page. This check box is displayed on the **Content Details** page, after you import the content.

Zip File

To import a Zip file, enter the following details on **Import Content** page.

- 1. In the **Zip File** field, use the browse button to select the ZIP file containing the files. It must expand to a single directory, which may or may not contain subdirectories.
- 2. In the Content Server field, use the picker to select the content server on which the files will be deployed.
- 3. Enter the **Starting File** for the content, specified as a path relative to the directory being uploaded. (For example, if the file is in the top directory, you would simply provide its filename.) The starting file is the file that will be displayed first when a user launches the content.
- 4. In the Other Information section, enter data for any additional fields configured by your system administrator.
- 5. Click Import.

Saba deploys the content on the specified server. When users launch the content, the specified start file is opened.

File

To import a File, enter the following details on **Import Content** page

- 1. In the **File** field, use the browse button to select the ZIP file containing the files. It must expand to a single directory, which may or may not contain subdirectories.
- 2. In the Content Server field, use the picker to select the content server on which the files will be deployed.
- 3. In the Other Information section, enter data for any additional fields configured by your system administrator.
- 4. Click Import.

If you are uploading a file, you must specify the file name and location, and a Saba content server. Saba uploads the file and deploys it to the specified server.

IMS Package

To import an IMS Package, enter the following details on **Import Content** page

- 1. In the **Zip File** field, use the browse button to select the ZIP file containing the package.
- 2. In the Content Server field, use the picker to select the content server on which the package will be deployed.
- 3. In the Other Information section, enter data for any additional fields configured by your system administrator.
- 4. Click Import.

Saba uploads the package and deploys it to the specified content server.

Saba Offline

To import offline content generated by Saba Publisher, enter the following details on **Import Content** page

- 1. In the **Zip File** field, use the browse button to select the ZIP file containing the package.
- 2. In the Other Information section, enter data for any additional fields configured by your system administrator.
- 3. Click Import.

Saba stores the package in its asset store, and downloads it to the user's machine when he or she is ready to access the content.

URL

To import a URL, enter the following details on **Import Content** page:

- 1. In the URL field, enter the full URL path.
- 2. Select the **Deployed on secure server** check box, if the content is to be delivered in a secure mode.
- 3. Enter the security context for secure content if the **Deployed on secure server** check box is selected.
- 4. In the Other Information section, enter data for any additional fields configured by your system administrator.
- 5. Click **Import**.

The content is launched directly from the specified location; it is not staged on a Saba content server.

Centra Recording

To import a Centra recording, enter the following details on **Import Content** page:

- 1. In the Centra Guest Playback URL field, enter the full URL path.
- 2. In the Other Information section, enter data for any additional fields configured by your system administrator.
- 3. Click Import.

The Centra recording is imported into the Saba Production repository.

Editing Existing Content

You can edit an existing content item by finding it in the production repository and clicking its link. This opens the content inventory details page for the selected content item. It has three tabs:

- The Content Details tab lets you view and change any of the content details for the content. (The content details are described in Step 1: Enter Content Details.) You can add owners for the content inventory item by clicking the Add Owner link. You can also preview the content and view the content communication log. Finally, you can change the content server or replace the content object with new content; however, this can have side-effects if anyone is using the content (as described in *Notes on Editing Content*).
- The Current Subscriptions tab lists all courses and offerings that have subscribed to the content. If a catalog offering has subscribed to the content, then users and instructors can launch the content and participate in it. If you need to re-import content, it's a good idea to look at this tab first and make sure that no catalog offerings have subscribed to the content. If catalog offerings have subscribed to the content, it may be safer to create a new, replacement content object, while leaving the original content unchanged.
- The Content Metadata tab displays the metadata associated with the content item. Metadata provides information about content objects stored in the content repository, and can be used to search for content in the repository. This tab is displayed only if Saba Content Management is enabled.

Notes on Editing Content

A content administrator or catalog administrator can use Saba to import and edit content. You should keep in mind the distinction between *importing* a content object and "uploading" content.

When you *import* content, you are registering a content object with Saba. This sets up a content repository entry for it, allowing catalog items to subscribe to the content. When you import content, you may (depending on the content type) have to specify a file or files for Saba to deploy on the content server. In those cases, Saba will upload the specific file you choose, making a copy in the Saba asset store and deploying one or more files onto a content server. In other cases,

you will not upload any files when you import content; for example, if the content is of the "URL" type, you will simply provide the external URL when you import the content.

Once the content has been imported, you can edit the content object by clicking on its link in the production repository. Some kinds of edits are straightforward. For example, if you change a content object's name or description, this will not affect any offerings which may have subscribed to the content.

On the other hand, if you alter the actual content (for example, by re-uploading the content file, or by editing the deployed files on the content server), this can have consequences if users are already taking the content.

If a user is taking *standards-compliant content* (such as SCORM or AICC content), Saba can keep track of the user's progress. If a user has proceeded partway through a content object, then exits the content player, the content can give Saba a "bookmark" indicating the learner's progress. The next time the user tries to open that content, Saba will ask him whether he wants to continue from where he left off, or to restart the content from the beginning.

If the content has changed since the user stopped, this can have any of the following effects:

- If the bookmark is no longer valid (because there is no longer a lesson with the ID number specified in the bookmark), the user will have to restart the content from the beginning. This may be frustrating for the user.
- If the bookmark is still valid, Saba will let the user restart from where the user left off, regardless of what changes were made to the content. Thus, if a user has completed part one to five of a ten-part lesson, and the content administrator added new material to part three, the user would be able to resume at part five and continue to the end of the lesson, without being aware that new material has been added in part three, and hence would not go through the new material added.
- In either case, it may be difficult to interpret users' content performance, since different users may have seen different versions of the content. Saba can know, for example, that Joe scored 80% and Jane scored 85% on the content, but it won't be able to tell you that Joe was using a later version of the content with new material added.

For this reason, you may want to be careful about editing content which has already been subscribed to. In some cases, this is straightforward. For example, if you see that you made a spelling mistake in the content, you can probably edit the content safely. But if you are making larger changes to the content (for example, adding or deleting large amounts of material), you may want to import a new content object for the revised content, and simply use the new content for all *future* offerings (leaving existing offerings alone).

Mastery Score Override

For a content inventory item, you can enable the mastery score override by setting the **Is Scoring** check box. This enables catalog administrators to edit and override the mastery score for content at the offering level. The **Is Scoring** check box can be set for the following content formats:

- AICC
- SCORM package
- Deployed SCORM

To enable the mastery score override:

- 1. Open Content Administration > Repositories > Production Repository page.
- 2. Click the Browse tab and select the required content.

Note: The content must be of AICC, SCORM package, or Deployed SCORM format.

3. Select the **Is Scoring** check box in the **Content Inventory Details** page.



Changing the Is Scoring attribute for a content affects the macro-rollup of an offering. Hence the system displays a count of the enrollments that are affected by this change.

- **4.** Click **Close** on the pop-up message.
- 5. Click **Save** on the content inventory details page.

Once the mastery score override is set, catalog administrators can modify the value of the mastery score. For more details, see the Saba Catalog Administrator Guide.

Viewing Objectives Data

For content that returns objective data, you can view the objective data when you preview the content.

To view objective data:

- 1. In the content repository, select content that returns objective data and click on it to open the inventory details page.
- 2. Click **Preview Content**. The content is displayed in the Saba Online Player.
- 3. Click Show Results icon.
- 4. Click View Objectives link.

Configurable Content Completion Trigger Point

As per the AICC and SCORM 1.2 content standards, the content completion trigger point is the exitAU/LMSFinish call. On receipt of the exitAU/LMSFinish call, the Saba application triggers the content completion check, which in turn triggers the offering completion check. However, sometimes the content either does not send out the exit commands, or it is not received by the Saba application. To handle such situations, Saba provides the ability to configure the content completion trigger point for the following content formats:

- AICC
- SCORM 1.2

Saba provides the following site-level properties that relax the dependency on the exit commands for triggering content rollup:

Relax the requirement of LMSFinish for triggering completion check for SCORM 1.2 only

The possible values for this property are:

- 0 No, do not relax the requirement. The system triggers completion check on receipt of LMSFinish command from the content.
- 1 Yes, relax the requirement. The system triggers completion check on receipt of LMSCommit with lesson status of either completed, passed or failed.
- Relax the requirement of ExitAU for triggering completion check for AICC only

The possible values for this property are:

- 0 No, do not relax the requirement. The system triggers completion check on receipt of ExitAU command from the content.
- 1 Yes, relax the requirement. The system triggers completion check on receipt of putparam with lesson status of either completed, passed or failed.

The default value for both the properties are '0'. To change the property setting, login as an 'admin' user and navigate to System Administration > System Configuration > Sites > < site name >> Content and change the required settings.



Change the default settings only if both the following conditions apply:

- The content does not send the exitAU/LMSFinish call, or the Saba application fails to receive the call.
- The content sends LMSCommit/putparam only once with lesson status of either completed, passed, or failed.

Diagnostic Tool for Content Communication

Saba provides a diagnostic tool that captures the communication between Saba and trackable content. This diagnostic tool logs the information exchanged between content and Saba for the last preview done during the current Saba session. The log can be viewed by content administrators for the following content types:

- AICC
- SCORM Package
- Deployed SCORM

Viewing the Content Communication Log

The content communication log can be viewed:

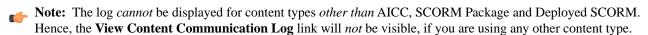
- From the Import Wizard
- From the Content Inventory Details Page

From the Import Wizard

To view the content communication log from the import wizard:

- 1. Import content of the required type (AICC, SCORM package, Deployed SCORM).
- 2. After importing the content, Saba displays a summary page describing the content object.
- 3. On this summary page, click the **Preview** link.
 - **Note:** You need to preview the content in the production repository before viewing the log. If you do not preview the content, then the log will be empty.
- **4.** On the summary page, click the **View Content Communication Log** link. The content object does *not* have to be published to view the log.

The log displays the communication sent to and received from the content for the last preview done in the current session. The log contains information sent by Saba to the content, such as the learner's name, last lesson status, score etc. It also contains information sent by the content to Saba, such as the status, the score, and detailed information about the responses to test questions.



From the Content Inventory Details Page

To view the content communication log from the Content Inventory Details page:

- 1. From the production repository, browse to the required content object.
- 2. Click on the content object to edit it.
- 3. The content inventory details page opens, displaying details of the content object.
- **4.** On the content inventory details page, click the **Preview** link.
 - **Note:** You need to preview the content in the production repository before viewing the log. If you do not preview the content, then the log will be empty.
- **5.** On the content inventory details page, click the **View Content Communication Log** link. The content object does *not* have to be published to view the log.

The log displays the communication sent to and received from the content for the last preview done in the current session. The log contains information sent by Saba to the content, such as the learner's name, last lesson status, score etc. It also contains information sent by the content to Saba, such as the status, the score, and detailed information about responses to test questions.

Note: The log cannot be displayed for content types other than AICC, SCORM Package and Deployed SCORM. Hence, the View Content Communication Log link will not be visible, if you are using any other content type.

Content Runtime Error Logs

Saba provides a mechanism by which errors that occur during the processing of runtime data and content rollup are logged. Content administrator can view these logs and take appropriate action when needed.

The runtime error log captures the following information at the time of failure:

Information	Possible Values	Available in Runtime Error Processing	Available in Content Rollup Error
Error Date/Time	Date and time of failure	Yes	Yes
Error Message	Error string that describes the problem	Yes	Yes
Error Source	AICCListnerSCORMListnerSCORM2004ListnerRollup	Yes	Yes
Content Type	• AICC • SCORM 1.2 • SCORM 2004	Yes	No
Request Data	 AICC: HACP Request SCORM 1.2 / SCORM 2004: XML Datagram 	Yes	No
Command	GetParamPutParamExitAU	Yes	No
CMI Registration Id	CMI Registration ID (cnt_cmi_registration.id)	Yes	No
CMI Session Id	CMI Session ID (cnt_cmi_session.id)	Yes	No
JsessionId	User session Id	Yes	No
Context Id	Content Context Id	No	Yes
Subscription Id	Content Subscription Id	No	Yes

Content Rollup

On receipt of the following command from content, Saba triggers content side rollup to check if the learner has completed the content:

- ExitAU (for AICC)
- LMSFinish (for SCORM 1.2)



These commands are the default content completion trigger points. System administrators can configure these trigger points for content completion. For more details, see Configurable Content Completion Trigger Point on page 159.

If the learner has completed the content, Saba marks the content complete and the learning item moves from Enrollments to Transcript.



Note: Automatic completion of learning items will not take place in case the Saba application does not receive the completion command from content. Hence the learning item will remain in Enrollments.

Viewing the Runtime Error Log

Content administrators can view the runtime error log as follows:

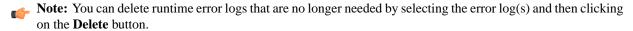
- 1. Open Content Administration > Repositories > Tools page and click Content Error Log in the left-hand sidebar. This displays the Error Log page.
- 2. On the Error Log page, you can search for error logs meeting any or all of the following search criteria:

Search Field	Description
From Date >= To Date <=	The date range when the error was logged. Use the date picker to populate these fields. For example, to find runtime errors that were logged between 1st March 2006 and 5th March 2006, enter the date range as 03/01/06 to 03/05/06.
Person	The id of the user who encountered the error while running the content. Use the person picker to populate this field.
Offering Part Number	The part number of the offering for which the runtime error occurred.

- 3. Click Search. All runtime error logs meeting the search criteria are listed. The search results display the following details:
 - · Log Date
 - · Log Time
 - · User Name
 - · Offering Part Number
 - Content Name

 - Attempt Number
 - Command
 - Error
 - Error Source

- 4. Once you find the required error log, click its command link (such as GetParam PutParam, ExitAU). This displays a pop-up window with the Request Data.
- 5. Click the View link of the error log. This opens a pop-up window displaying the error that occurred during the processing of runtime data.



Learner Communication Logs

Learner communication log is a diagnostic tool that logs the information exchanged between content and Saba, when a leaner takes the content. The log helps content administrators identify the reasons for content completion issues that occur for specific content modules in learner registrations.

You can enable logging for content modules in learner registrations that have completion issues. When a learner consumes the content, the communication that takes place between the content and Saba is captured in a log. You can view the log and identify the cause of the error.

Submitting a Learner Communication Log Request

You can enable logging for content modules in learner registrations by submitting learner communication log requests.

To submit a learner communication log request:

- 1. Navigate to Content Administration > Repositories > Learner Communication Log > Request Submission . The Learner Communication Log - Request Submission page appears.
- 2. Specify the offering and/or learner and click Search. The search displays all learner registrations that meet the specified criteria, and the content modules these registrations.
- 3. Select the content modules in a learner registration for which you want to enable logging.



You cannot submit multiple requests for the same content module in a registration. If there is no checkbox for some content modules, then it implies that learner communication log request has already been submitted for those content modules.

4. Click **Submit Request**. The Saba application enables logging for the selected content module in the registration. When the learner takes the content, the system captures the communication log for the learner.

You can delete a learner communication log request that you have submitted by clicking its **Delete** link in the actions column. This removes the log request.

Viewing the Learner Communication Log

You can view the learner communication log requests that are submitted for the content modules in learner registrations. After a learner takes the content, you can view its communication log.

Prerequisites to viewing the learner communication log are:

- You must submit a request to enable logging.
- The learner must take the content.

To view the learner communication log:

- 1. Navigate to Content Administration > Repositories > Learner Communication Log > Request Status. The **Learner Communication Log - Request Status** page appears.
- 2. Specify the offering and/or learner and click Search. The search displays all requests submitted for the learner or offering.
- 3. Click the **View Log** link for the required learner registration.

The View Log link is displayed only after a request has been submitted for the registration, and the learner has taken the content.

You can delete a learner communication log request that you have submitted by clicking the **Delete** link for the learner registration. This removes the log request.

Content Compliance Testing Tool

The Content Compliance Testing Tool is a diagnostic tool intended to simplify the process of troubleshooting and correcting content interoperability problems by analyzing the problems and providing recommendations for corrective actions. You can use this tool to identify content that is not compatible with Saba. The tool provides sufficient detail to identify a problem and assist in resolving it.

The Content Compliance Testing Tool does the following:

- Validates import of SCORM 1.2 packages. It checks the manifest file and provides details for non-conformant cases.
- Logs all runtime data passed by the content.
- Lists the possible values for data model elements that are set incorrectly at runtime.
- Lists each data model element that is set incompletely at runtime.

The Content Compliance Testing Tool can be used in the following modes:

- Import Testing Mode
- Runtime Communication Testing Mode

The Content Compliance Testing tool only works with SCORM 1.2 content packages. On import, the tool deploys the content on the default content server. At runtime, it plays the content in Saba Online Player using the system defined player template.

Import Testing Mode

In the import testing mode, the Content Compliance Testing Tool validates the content package and indicates if it is possible to import the content package successfully into the Saba content repository. If the content package import fails, the tool displays the import log to the user and terminates. The log lists all the issues with content package and categorizes them as errors or warnings. For information on errors and warnings, see Classification of Issues as Errors and Warnings.

Once the tool successfully tests the content package, the tool launches the content and validates the runtime data. For more information, see *Runtime Communication Testing Mode*.

Classification of Issues as Errors and Warnings

In the import testing mode, issues with the content are classified as errors or warnings.

Issues with content are classified as errors if:

- Saba cannot import the content package
- Content import works, but content is not displayed on launching it.

For example, content import fails if the manifest file is not at the root of the content package.

For a complete list of cases for which the Content Compliance Testing tool logs errors, see When are Errors Logged?.

Issues with content are classified as warnings in cases where the content package or manifest file is not conformant to the SCORM 1.2 specifications, but Saba allows the import of the package.

For example, if the <organization> element of the manifest file does not having a <title> element, both content import and launch will work, but the structure inside Saba Player TOC will have a mismatch, as there is no title specified for organization element.

For a complete list of cases for which the Content Compliance Testing Tool logs warnings, see When are Warnings Logged?.

When are Errors Logged?

The Content Compliance Testing tool logs an error in the following cases:

- Content Packages
 - The manifest file is not at the root of the content package.
 - The manifest file is not a valid XML document.

The XML document should contain matching start and end tags, it should contain a root element, the attribute values should be enclosed in double quotes ("), and the attribute values should not be repeated.

<manifest> Element

- The manifest element is not the first, outermost element inside the manifest file.
- The first, outermost <manifest> element does not contain a <resources> child element.

<organization> Element

- There is no default organization specified in the content package and the value for the identifier attribute of the first <organization> element is empty.
- The default <organization> element does not contain any <item> element.
- There is no default organization specified in the content package and the first <organization> element does not contain any <item> element.
- The default <organization> element does not have an identifier attribute.
- There is no default organization specified in the content package and the first <organization> element does not have an identifier attribute.

<item> Element

- The <item> element does not have an identifier attribute.
- For <item> elements having identifierref attribute specified:
- The value of the identifierref attribute should refer to the identifier attribute of one of the <resource> elements in the manifest, or
- The value of the identifierref attribute should refer to the identifier attribute of one of the <resource> elements in the sub-manifest, or
- The value of the identifierref attribute should refer to the identifier attribute of sub-manifest
- The leaf <item> element does not have an identifierref attribute.

<resource> Element

- The <resource> element that is referenced by the <item> element, does not have an identifier attribute specified.
- The <resource> element that is referenced by the <item> element, does not have a href attribute specified.
- The href attribute value for the <resource> element that is referenced by the <item> element, does not refer to an external URL and the package does not contain the resource specified by the href attribute.

Once the content compliance testing tool logs an error, it stops testing and exits.

When are Warnings Logged?

The Content Compliance Testing Tool logs warnings for the following cases at import time:

- The name of the manifest file is not in proper case (imsmanifest.xml).
- The first, outermost <manifest> element has more than one child <organizations> element.
- The first, outermost <manifest> element does not contain a child <*organizations>* element.
- The first, outermost <manifest> element has more than one child <*resources*> element.
- The default <organization> element does not contain a <title> child element.
- The same identifier attribute value is used by more than one <item> element in a content package.
- The *<item>* element is defined outside the *<organization>* element.

- The *<item>* element does not contain a *<title>* child element.
- The *<item>* element contains more than one *<title>* child element.
- In case of a resource package, a <resource> element has an href defined, but no identifier attribute defined.

Runtime Communication Testing Mode

In the runtime communications testing mode, you can test the communication that takes place between content and Saba during runtime. In this mode, you can launch and preview content using the Saba Online Player. The tool captures all runtime communication data during the session, and displays a log with the information in an easy to read format. This enables you to see the information that is being exchanged.

The Content Compliance Testing Tool logs the runtime data as you progress through the content. If incorrect runtime data is set, the log lists all possible valid values for the specific data model elements. Also, for incomplete runtime data, the log lists all the data model elements that do not have any runtime data. For more information, see *Handling Various Runtime Cases*.

Handling Various Runtime Cases

The Content Compliance Testing tool provides information about the incorrect usage of the SCORM API in the following runtime cases:

- Content not calling LMSInitialize() or calling other API functions like LMSSetValue, LMSGetValue before calling LMSInitialize().
- Content not calling LMSFinish().
- Content calling LMSInitialize() twice.
- Content calling LMSSetValue() on read-only data model elements.
- Content calling LMSGetValue() on write-only data model elements.
- Content calling LMSGetValue() on data model category or element that does not support _children.
- Content calling LMSGetValue() on data model category or element that does not support _count.
- Content passing an invalid data model element, for example in LMSSetValue or LMSGetValue call.
- Content calling LMSSetValue() on a keyword like _children, _count.
- Content setting a value which exceeds the maximum length of the data model element.
- Content setting a value that is not within its bounded vocabulary of possible values. For example, setting a value for cmi.core.exit other than time-out, suspend, logout, or empty string
- Content setting an element value which is out of range for that element. For example, setting a value for cmi.core.score.raw not in range {0, 100}.
- Content setting time in wrong format. For example, setting a value for cmi.core.total_time not in the format "HHHH:MM:SS.SS".
- Content setting wrong index for the data model element. For example, setting cmi.interactions.1.id instead of cmi.interactions.0.id for the first interaction.

Differences Between Saba's Compliance Testing Tool and ADL's Conformance Test Suite

The Conformance Test Suite provided by Advanced Distributed Learning (ADL) is used to test for compliance with the SCORM specification. Saba's Content Compliance testing tool provides the following capabilities which are beyond the scope of the ADL Conformance Test Suite:

- When content import fails, it is mostly due to non-conformant content packages. The ADL Conformance Test Suite
 for validating content packages does not always provide the specific details. Saba's Content Compliance Testing
 Tool enumerates all issues with the content package and manifest file.
- In specific cases, Saba allows the import of content, even if the content does not strictly conform to the SCORM 1.2 specification. For example, Saba allows the import of content in the following cases:
 - the default organization is not specified in manifest file
 - · no title specified for organization element
 - · no title specified for item element

These content packages can be successfully imported into Saba, although they would fail in ADL Conformance Test Suite.

- For content runtime, there are two modes of operation that can be set by the system administrator:
 - Relaxed mode (SCORM Conformance is set to zero)
 - Strict mode (SCORM Conformance is set to one)

In relaxed mode, Saba allows content to set runtime data that does not follow the strict guidelines specified in SCORM 1.2 Runtime Environment (RTE) specification for few data model elements with fixed vocabulary. For example, the data model element cmi.core.lesson_status has a fixed vocabulary consisting of:

not attempted, incomplete, completed, passed, failed, browsed (case sensitive).

In relaxed mode, Saba does not display an error for content that sets the following as the data model element values when run in relaxed mode (however, it would display and error when run in strict mode):

P, Passed, PASSED, Complete, COMPLETE etc.

When the content sets incorrect runtime data, the Content Compliance Testing Tool provides a list of all possible values for error cases. The ADL Conformance Test Suite does not provide a list of valid values.

Testing a Content Package

You can test SCORM 1.2 content packages for compatibility with Saba using the Content Compliance Testing Tool, as follows:

- 1. Open Content Administration > Repositories > Tools page and click Content Compliance Test in the left-hand sidebar. This displays the Content Compliance Test page.
- 2. Click the Browse link to browse your local disk or network and select the content package to be tested.
 - Note: The content package must be in SCORM 1.2 format.
- 3. Click Start Test.

On successful completion of import, a message is displayed, prompting you to run through the content completely. Click **OK** and run through the content.

If import testing is not successful, then no runtime testing is done.

4. On validating the content package, the tool displays the Content Compliance Test - Summary page with the following details:

Content Package	The name of the content package.	
Content Format	Saba currently supports compliance testing for SCORM 1.2 packages only.	
Import Status	Displays any one of the following three possible import statuses: • Success • Error • Warnings	

Note: The runtime status of the content is not displayed on the Content Compliance Test - Summary page. You should click on the View Errors/Warnings link for information on the runtime status.

- **5.** Click the following links to open the log:
 - View Detailed log

The detailed log displays information about all interactions that take place between content and Saba, including the error cases, warning cases and success cases.

View Errors/Warnings

The Error/Warnings log displays information about only the error cases and warning cases.

Note: You can save the **Detailed log** and the **Error/Warning log** to your local disk or network by opening the log and selecting **File** > **Save As...** using the browser menu options.

Viewing Content Results

Learners can view the content results for an offering that they have enrolled for. The results information for SCORM 2004 content includes information about your content attempts. For all other content formats, including SCORM 1.2, content attempt does not apply as the lessons are individually attempted. For detailed information on how to view the content results, see the *Learning User Guide*.

Content States

A content inventory item in the Saba content repository can be in one of the following statuses:

Table 23: Content States

Status	Description
Published	The content is available for subscriptions. Learners can consume the content. The Published state can be changed to On Hold or Purged .
On Hold	The content consumption is temporarily suspended. The content is not available for subscrip~ tions. The On Hold state can be changed to Published .
Expired	The state of the content once the expiration date for the content is reached. The content is available for consumption, but not for subscriptions. Offerings that have already subscribed to the content continue to offer the content. Knowledge Base content in Expired state cannot be launched by users. The content state can be changed from Expired to Purged .
Purged	The content is not available for consumption or subscription. Knowledge Base content in Purged state cannot be launched by users. Content in Purged state cannot be edited, and the state cannot be changed.

Subscribing to Content

A learning offering can *subscribe* to content in the Production Repository and Knowledge Base. This makes the content available to learners and instructors who are registered for that catalog item.

To subscribe to content, open the learning offering and click on the **Attach Content** link. For more information see the *Catalog Administrator Guide*.

Consuming Content

Content can be consumed through the learning catalog. To consume content that is attached to an offering in the learning catalog, the user must first register for the learning offering. Standards compliant content consumed through the learning catalog can be tracked. It sends back results information to Saba, which is stored in the system and can be viewed and analyzed through reports.

For more information on consuming content, see the Learning User Guide.

E-Signature for Auditing Content Completion

You can use e-signature to audit the action of content completion for standards-compliant content. When a person completes a standard-compliant content that requires e-signature, the system prompts the user to enter a password. This additional security layer verifies the individual completing the content.



Note:

Content formats such as AICC, and SCORM 2004 Edition 2 and Edition 3 do not support e-signature.

For non-standards-compliant content, Saba provides the sign off capability to ensure that a learner signs off on content completion. For detailed information about sign off, see Sign Off Capability for Content Modules in an Offering on page

To set up e-signatures for content completion:

- The business rule for e-signatures must be enabled. For more information, see the System Administration Guide.
- Auditing for the content inventory component audit action Sign Off for a given content must be enabled and set to either 'E-signature reason required' or 'E-signature reason not required'. For more information, see the System Administrator Guide.
- The **E-Signature Required** check box should be selected for the standard-compliant content inventory item.

The system prompts the learner for an e-signature on content completion and creates an audit trail entry.

Sign Off Capability for Content Modules in an Offering

Saba provides sign off capability on completion of non-standards-compliant content modules in an offering. The sign off capability prevents automatic completion of the content modules on content launch for non-standards-compliant content. If sign off has been set to Required for a non-standards-compliant content module in an offering, then once a learner completes the content, the learner needs to sign off to indicate that the learner has completed the content.

Sign off capability can be set for non-tracking content modules in an offering. The following non-standards-compliant content formats support sign off capability:

- File
- Directory
- URL
- · IMS Package
- Centra Recording
- Zip File

The following standards-compliant content formats do not support sign off capability:

- **AICC**
- **SCORM Package**
- Deployed SCORM

Sign off capability impacts content module completion, and hence offering completion. Offering completion is driven by the automatic completion rule for an offering. If automatic completion for an offering is not allowed, then sign off only marks the content module complete; it does not move the offering from the enrollments to the transcripts.

Sign off capability is different from the e-signature required setting on a content inventory object. For information about e-signature, see E-Signature for Auditing Content Completion on page 169. Security privileges for mark completion are not needed, and do not affect sign off capability.

Setting Up Sign Off Capability

To set up sign off capability for non-standards-compliant content:

- System administrators must enable auditing on the content inventory component audit action Sign Off for a given content. System supports all levels of auditing.
- Catalog administrators must select the Sign Off Required check box while adding content modules to an offering. If an offering contains multiple content modules having both standards-compliant content modules such as AICC or SCORM, and non-standards-compliant content modules such as File, URL or Directory, then the sign off requirement is applicable only for non-standards-compliant content and is ignored for standards-compliant content.



If auditing was enabled, and then disabled after sign off has been set for a content module, then the Sign and Exit link on the Online Player, and the Sign Off link on the Enrollments page performs no action.

Signing Off on Content Completion

Learners need to sign off on completion of non-standards-compliant content, if Sign Off is set as Required for the content module in the offering.

Learners can sign off on content completion by clicking any one of the following links:

- **Sign Off** link for the content from the Enrollments page.
- Sign and Exit link on the Online Player



Note:

The 'Sign & Exit' link is only provided with the System Defined player template. This link is available only if the Player template has the Navigation bar enabled.

Saba provides the following sign off statuses:

Table 24: Content Completion Sign Off Statuses

Sign Off Status	Description
N/A	Not applicable
Required	Sign off needed, but learner has not launched the content.
Sign Off	This link is displayed when content is completed by the learner, and sign off is pending. The learner can click this link to sign off. This marks the content module complete and checks for offering comple~tion.
Signed Off	Content completed by the learner and signed off.

Purging Content Inventory Items

You can purge content inventory items in the Production Repository and Knowledge Base. When a content is purged, the physical files are removed from the content server and asset store. Learning offerings cannot subscribe to purged content, and learners cannot consume content in purged state.

After a content inventory item is purged:

- The status of the content inventory item is displayed as Purged. The status cannot be changed.
- You cannot update the content details and metadata of purged content, you can only view it.
- You cannot attach the purged content to an offering. Offerings cannot subscribe to content that is in purged state.
- · Purged content that is attached to a course or delivery type are not inherited by any new offerings that may be created from the course or delivery type.
- If an offering contains purged content, then the new registrations for the offering do not contain the purged content.
- You cannot preview the content as it is not available.

- Learners cannot complete the offerings that contain purged content. Hence, catalog administrators must redefine the completion criteria for the offering by disabling or deleting the content modules in purged state. Once this is done, learners can complete the offering.
- Existing registered learners cannot launch content that is in purged state as the launch link is disabled. The Progress **Report** page for the enrollment displays the **Module Availability** status for purged content as **Not available**.
- You cannot create new MRAs and surveys using purged content. Existing MRAs and surveys containing purged content need to be replaced with new MRAs and surveys.

To purge a content inventory item:

- 1. Navigate to Content Administration > Repositories page.
- 2. Choose the repository where the content resides: Production repository or Knowledge Base.
- 3. Navigate to the required content folder within the selected repository.
- 4. Click the content inventory item that you want to purge. The Content Inventory Details page for the selected inventory item is displayed.
- 5. The Status field displays the current status of the content. Click the Edit link in the Status field.
- 6. The Current Status pop-up page is displayed. Select the radio button Change Status to "Purged".
- 7. Optional: If the content is currently used in the system by a learner, then you can choose not to purge the content by selecting the check box that appears depending on the type of content:
 - Do not purge the content if there are active enrollments that contain this content.

- Do not purge the content if there are surveys, evaluations or multirater assessments that contain the content.
- 8. Click Change.
- 9. A message is displayed stating that the change to content status will take effect only after you save the content. Click OK. The Status field displays the status as Purged.
- 10. Click Save. The status of the content changes to Purged.

Chapter

15

Managing the Knowledge Base

Topics:

- Maintaining Folders in Knowledge Base
- Finding Content in the Knowledge Base
- Managing Content in the Knowledge Base
- Managing your Interest Lists
- Publishing Saba Centra Recordings to the Knowledge Base
- Susbcribing to Content
- Consuming Content in the Knowledge Base

The Saba Knowledge Base is a repository of content that can be consumed directly by end users, without having to register for learning offerings. Learning offerings can also subscribe to content in the Knowledge Base, and learners can consume it through the learning catalog.

Maintaining Folders in Knowledge Base

You can define a taxonomy structure in the Knowledge Base and maintain it. This taxonomy helps in the classification of content within the Knowledge Base.

For more information, see:

- Creating Content Folders
- Editing Content Folders
- Deleting Content Folders

Note: This topic assumes that you are in the Content Administration > Repositories > Knowledge Base > Browse page.

Creating Content Folders

Folder structures within the Knowledge Base are used to group content. You can create your own folders as follows:

- 1. Select the folder within which you want to create your new folder.
- 2. Click on the New Sub Folder link. The New Content Folder pop-up page is displayed.
- **3.** Enter the name of the new folder.
- 4. The Security Domain field displays the default domain. You may change the security domain of the folder if required.
- 5. Click Save.

A new sub folder is created within the selected parent folder.

Editing Content Folders

You can edit existing folders and change its name or security domain. To edit a folder:

- 1. Select the folder that you want to edit.
- 2. Click on the Edit Folder link. The Content Folder Details pop-up page is displayed.
- **3.** Edit the required folder details.
- 4. Click Save.

Deleting Content Folders

You can delete a content folder that do not contain any content objects or sub folders.

To delete a folder:

- 1. Select the folder to be deleted. The delete icon appears next to it.
- 2. Click on the delete icon. The delete confirmation pop-up is displayed. Click **OK**.

The selected folder is deleted.

Finding Content in the Knowledge Base

You can find content in the Knowledge Base by browsing it or by using search.

To browse the Knowledge Base, open **Content Administration** > **Repositories** > **Knowledge Base** page and click the **Browse** tab.

To search for a particular content object, open **Content Administration** > Repositories > **Knowledge Base** page, and click on the **Search** tab. You can search by any or all of the following criteria:

Search Field	Description	
Name	Name of the content object. Enter the first few characters of the content object name. The search finds all content objects that start with the string you enter.	
Content Format	Content format of the content object. Select a content format from drop-down list of system-supported content formats.	
Content Type	The type of content. Use the drop-down list to select a content type.	
Available from >=	The date range in which content is published.	
Available from <=	Use the date picker to populate these fields. For example, to find content published to the Knowledge Base in the month of January 2007, enter the date range as 01/01/2007 to 01/31/2007.	
Last Modified on >=	The date range in which content is modified.	
Last Modified on <=	Use the date picker to populate these fields. For example, to find content in the Knowledge Base that was modified in the month of January 2007, enter the date range as 01/01/2007 to 01/31/2007.	
Folder Name	The folder within the Knowledge Base where you want to search for the content.	
Version number	The version number of the content. The search displays all content that match the specified version number.	
Status	The status of the content. For example, available , on hold or expired content. Select the status from the drop-down list.	
Language	The language in which the content is published. Enter the first few characters of the language. The search finds all content objects that start with the string you enter.	
Keywords	The keyword associated with the content. The keyword is a metadata used to classify the content. Enter a string of characters contained in the keyword. The search finds all content objects that contain the string you enter.	
Author	The author of the content. Enter a string of characters contained in the keyword. The search finds all content objects that contain the string you enter.	
Competency	The competency associated with the content. Use the competency picker to find and select the required competency.	

Search Field	Description
Content Provider	The name of the content provider that provides the content.
Delivery Vendor	The delivery vendor is the application that plays the content. Choose the delivery vendor from the drop-down list. Choose Saba to find content that plays in the Saba player; choose Native to find content that plays in a native player (such as Internet Exporer).
Owner	The owner of the content.
OLSA Asset Update Failed	Select this checkbox to find content where the reimport of updated content failed. This field is only applicable for content imported into Saba using the OLSA integration feature.

Enter your search criteria and click **Search**. If you enter more than one criteria, the search returns only those content objects which match *all* the criteria you entered. If you leave all fields blank, the search returns all content objects.

The search results are displayed in a list (possibly across several pages). You can edit a content object by clicking on its link. You can delete a content object by clicking its **Delete** (trash can) icon.

Managing Content in the Knowledge Base

Content is stored within folders in the Knowledge Base. You can import content into the Knowledge Base, edit existing content and delete content.

For detailed information, see:

- Importing Content
- Editing Content
- Deleting Content

Importing Content

There are two ways to capture content into the Knowledge Base:

- Importing existing external content
 - Saba provides an import wizard that enables you to import content into the Knowledge Base. For detailed import process, see *Importing External Content*.
- Publishing content from a project.

Using Saba Content Management, you can publish content from a project within the development repository to the Knowledge Base. For information on publishing content, see the *Saba Content Management Guide*.

When you import content, you also deploy the content on content servers. The content can be deployed on secure content servers. For more information, see *Importing Secure Content*.

Importing External Content

You can import external content directly into the Knowledge Base, from your local disk or network or from a web address. To import existing external content into the Knowledge Base:

- 1. Open the Content Administration > Repositories > Knowledge Base page and click the Browse tab.
- 2. Select the folder where you want to import the content.
 - Note: You cannot import content to the root Knowledge Base root folder. You can import content to any sub folder within it.
- 3. Click the **Import** link. This launches the import content wizard. The wizard has two pages:
 - Step 1: Enter Content Details on page 177
 - Step 2: Import Content on page 178

Step 1: Enter Content Details

On this page, you provide general information about the content (information which does not depend on the content type). Enter the following information:

Table 25: Import Content Wizard: Content Details

Field	Description
Name	A name for the content object.
Security Domain	The security domain for the content object. To enter a security domain, click the "picker" icon. Note: Users will not be allowed to use the content unless they have permission to access the specified security domain. To make the content available to all users, choose the "world" domain.
Content Format	Choose the content format from the drop-down list. On the next page of the wizard, you will enter information specific to the content format you choose.
Player Template	The player template used to launch the content. By default, the system defined player template is selected. You can associate a different player template with the content by clicking on its picker icon.
Content Type	Choose the content type from the drop-down list of system defined content types.
Version Number	The version number for the content. The imported content will have the specified explicit version number associated with it. This field is optional.
Expiration Date	The date on which the content will expire. The imported content would not be available for subscription and cannot be consumed beyond this date. This field is optional.
Parent Folder	The folder within the repository where the content is imported. You cannot edit this field. If you want to import content into a different folder, you have to cancel this operation and choose a different folder.
Content Provider	The name of the content vendor that provides content. Select the name of the content vendor from the drop down list of content providers configured in the Saba system. This field is optional, and applicable only if the OLSA Integration functionality is enabled by your system administrator.
Delivery Vendor	Choose the delivery vendor from the drop-down list. If you select Saba as the delivery vendor, then the content plays inside the Saba player. If you choose Native as the delivery vendor, the content plays in a native player (such as the Internet Explorer browser) or the content can be downloaded and played using an associated application.
	For content contributed to knowledge Base (from Home > My Learning > Knowledge Base > Contribute), the delivery vendor is set as Native by default. Note: Secure content servers do not support Native delivery vendors.

When you have entered the required information, click Next.

Step 2: Import Content

On the **Import Content** page, you provide content format-specific information about the content you are importing. You would provide the location of a file or directory that you want to upload to the content store. In addition, you may provide information for any additional data fields defined by your system administrator. For detailed information about importing different content formats, see *Importing Various Content Formats* on page 154.

After entering all the necessary information, click **Import** to upload the content to the content store. Once you finish importing the content, Saba displays a summary page describing the content object. In addition, you can preview the content in the Saba Player by clicking the **Preview Content** link from this page.

Once you have imported the content, any user in Saba can consume the content directly from the Knowledge Base. Importing Secure Content

Content can be delivered over secure content servers. For more information about secure content servers, see *Secure Content Server* on page 140.

At the *content inventory* level, the following deployed content formats may be delivered in a secure mode:

- AICC
- Deployed SCORM
- URL
- File

To deliver the content in a secure mode, select the **Deployed on secure server** check box and enter the **Security context.**

At the *content server* level, the following content formats may be delivered in a secure mode:

- SCORM Package
- IMS
- Directory

Thus, for these content formats, **Deployed on secure server** check box and **Security context** field are not displayed on the **Import Content** page. If a content server is defined as secure, all content deployed on it will be secure.

Editing Content

You can edit an existing content item by finding it in the Knowledge Base and clicking on its link. This displays the content inventory details page for the selected content item. It displays the following:

- The Content Details tab lets you view and change the content details for the content. (The content details are described in Step 1: Enter Content Details on page 177.) You can add owners for the content by clicking the Add Owner link. You can preview the content. You can also change the content server or replace the content object with new content. The deep-link URL is displayed.
- The Current Subscriptions tab lists all courses and offerings that have subscribed to the content. If a catalog offering has subscribed to the content, then users and instructors can launch the content and participate in it. If you need to re-import content, it's a good idea to look at this tab first and make sure that no catalog offerings have subscribed to the content. If catalog offerings have subscribed to the content, it may be safer to create a new, replacement content object, while leaving the original content unchanged.
- The **Content Metadata** tab lists the content type, content format, author, description, language and keywords for the content item. You can also view the existing competency and add new ones.

To return to the Knowledge Base, go to the end of the page and click **Return to Repository**.

Deleting Content

You can delete an existing content item by finding it in the Knowledge Base and clicking on its Delete icon (trash can). The delete confirmation pop-up is displayed. Click OK to delete the content item.

Managing your Interest Lists

An interest list is a list of users who have signed up for a particular content category in the Production Repository, or Knowledge Base. This list can include users such as learners and content administrators. Members of the interest list receive a notification with an embedded content link, each time content is added or updated within the content category.

For detailed information, see:

- Signing up for an Interest List
- Viewing Your Interest List
- Removing Items from your Interest List

Signing up for an Interest List

You can sign up for an interest list associated with any folder in the Knowledge Base or Production Repository. To add a folder to your interest list, select the content folder and click on Add to Interest List link. The selected folder is added to your interest list. Whenever a content is added or modified within this folder, you will receive a notification.

Viewing Your Interest List

You can view your existing interest lists. This enables you to view the content folders in your interest list and delete the folders that are no longer relevant to you. To view your interest list, click on My Interest List link. This displays My **Interest List** pop-up, listing all the content folders that you have signed up for.

Removing Items from your Interest List

You can remove items (content folders) from your interest list that are no longer relevant to you. You can delete items using any of the following methods:

- Select the folder in the Knowledge Base taxonomy structure that you want to remove from your interest list. Click on **Remove from Interest List** link. This link is displayed only if the selected folder is part of your interest list.
- View your interest lists by clicking on My Interest List link and click the delete icon (trash can) corresponding to the folder you want to delete.

Once you remove a content folder from your interest list, you will stop receiving notifications when content is added or updated within this content folder.

Publishing Saba Centra Recordings to the Knowledge Base

Saba users can schedule, launch, and record Centra online meetings using the Saba Centra capability available in the header bar. In particular, users can:

- Schedule meetings to occur either immediately or at some specified time in the future.
- Invite participants to the meetings.
- · Launch the meetings.
- Record the meetings.
- Publish the recordings to the Knowledge Base. Saba users with access to the Knowledge Base can play back the recordings at any time.

If recording capability is enabled for the scheduled sessions, then the event Leader has the option to record the event.

If the Auto Publish Recording option (in the Meeting Details) is set to Yes, then the recording of a session is automatically published to the Centra Recording folder in the Knowledge Base when the recording is completed.

If the **Auto Publish Recording** option is set to No, the meeting owner receives an email notification when the recording is completed. The meeting owner can then manually publish the recording through the meeting entry in the owner's personal calendar. To publish the recording to the Knowledge Base manually, the owner must have the 'Can Contribute to Knowledge Base' security role.

Susbcribing to Content

A learning offering can *subscribe* to content in the Production Repository and Knowledge Base. This makes the content available to learners and instructors who are registered for that catalog item.

To subscribe to content, open the learning offering and click on the **Attach Content** link. For more information see the *Catalog Administrator Guide*.

Consuming Content in the Knowledge Base

Any user in Saba can consume content in the Knowledge Base directly, without the overhead of registering for the learning item. Learners can also consume content in the Knowledge Base through the learning catalog, by registering for an offering that subscribes to the content.

For information on consuming content in the Knowledge Base, see the Saba Learning User Guide.

Chapter

16

Detect and Fix Tool

Topics:

- Overview
- Detect Process
- Fix Process
- Fix Queue
- Violations
- Detect and Fix Dashboard
- Detect and Fix Log Repository
- Viewing Details of Registrations Updated
- Ad Hoc Detect and Fix Requests

This chapter describes the detect and fix tool that resolves content completion issues in learner registrations.

Overview

The **Detect and Fix** tool detects content rollup failures in learner registrations and fixes them. This tool runs periodically at a scheduled time and frequency. You can also submit ad hoc requests to detect and fix content rollup issues for specific learner registrations.



The tool cannot be used if content developers manipulate the exitAU command to manage completion.

Reasons for Content Completion Failures

Content completion failures can result in a learner's enrollment not moving to the transcripts, after the learner completes all required content modules attached to the offering. Offering completion failure can further affect learner certifications and curricula completion.

There are multiple reasons for completion failures, some of which are listed below:

- Communication drop due to network issues that result in the content completion call not reaching Saba.
- Incorrect content inventory setup such as scoring content not sending a score, or mastery score missing.
- Badly authored content.

Supported Content Formats

The **Detect and Fix** tool supports the following content formats:

- SCORM 1.2
- AICC

Detect Process

The detect process identifies content-level rollup failures, and offering-level rollup failures in learner registrations. The periodic event Initiate Detect Process triggers the detect process.

In addition to the scheduled detect process, you can also submit ad hoc requests to detect and fix content completion issues for specific learner registrations. For details, see Ad Hoc Detect and Fix Requests on page 187.

Content administrators can view the following details for each scheduled run of the detect process:

Table 26: Detect Process Details

Information Displayed	Description
Run Status	The status of the detect process. For detailed information, see <i>Detect Process Statuses</i> on page 183.
Run Start Time	The time period for which the detect process runs. By default, the detect process
Run End Time	starts at a predefined time everyday. The end time may vary depending on the number of records processed.
Run Last Notification On	This information is applicable only for a detect process that is <i>in-progress</i> . It displays the date and time when the detect process last processed an item. For a detect process that is <i>in-progress</i> , this field helps identify if the detect process is active, or not. If this field is not being updated for a long time, and detect Run Status is still in-progress, then it indicates that the detect process may not be active.

Information Displayed	Description
Content Attempt Review Period From	The period for which the detect process scans all the content attempted by learners from their enrollments and transcripts. The detect process automatically
Content Attempt Review Period To	computes this period. Note: The first run of the detect process scans all content attempted by learner on the previous day.
Registrations Scanned	The number of learner enrollments and transcripts inspected by the detect process.

On completion of the detect process, content administrators and super users receive the email 'Rollup Failure Detection Notification'.

Detect Process Statuses

The detect process can have any one of the following run statuses:

Table 27: Detect Process Statuses

Run Status	Description
Started	When the periodic notification Initiate Detect Process is trig~gered.
In Progress	When the detect process scans learner registrations for the detection of rollup issues. Only one detect process can run at any given point of time. If one detect process is in-progress, and another detect process is triggered, this newly triggered process terminates itself, as a detect process is in-progress currently.
Successful	When the detect process is completed successfully.
Failed	When the detect process fails.

Fix Process

The fix process fixes the rollup failures identified by the detect process, and updates learner registrations. The periodic event Initiate Fix Process triggers the fix process.

The fix process also handles ad hoc requests for fixing rollup issues in learner registrations. For details, see Ad Hoc Detect and Fix Requests on page 187.

Content administrators can view the following information for each scheduled run of fix process:

Table 28: Fix Process Details

Information Displayed	Description
Successfully Processed	The number of learner registrations successfully updated by the fix process.
Unsuccessfully Processed	The number of learner registrations having rollup issues that were not resolved by the fix process.
No Action Required	The number of learner registrations that do not require any fix.
In Progress	The number of learner registrations that are currently being processed.

Fix Queue

The **Fix Queue** is a holder used by the system to store items that need to be acted upon by the fix process. It holds all learner registration to be inspected for completion. This includes learner registrations with rollup failures that are identified by the detect process, and also includes ad hoc detect and fix requests.

When the fix process runs at the scheduled frequency, it processes the items in the fix queue and fixes them.

To view the status of the fix queue, click the **Fix Queue Status** link on the left navigation bar under **Detect and Fix**. It opens the **Fix Queue Status** page displaying the following information about the state of fix queue items:

Table 29: Fix Queue Details

Fix Queue Information	Description	
Pending Processing	Count of fix requests in the fix queue that are not yet processed.	
In Progress	Count of fix requests in the fix queue that are currently being processed.	
	It displays the date and time when the fix process last processed an item. This field indicates whether the fix process is running, or not.	

The **Fix Queue Status** page displays the following information about the fix process schedule:

Table 30: Fix Process Schedule Details

Fix Process Schedule Information	Description
Status	The status of the periodic event Initiate Fix Process. This event triggers the fix process at the scheduled time. This event is enabled by default.
Last Run	The date and time when the event Initiate Fix Process last occurred.

Fix Process Schedule Information	Description
	The date and time of the next scheduled occurrence of the event Initiate Fix Process'

This page also displays the status of the Notification Server. As periodic events trigger the detect process and fix process, the notification server must be up to initiate the detect process and fix process.

Violations

Violations are learner registrations having rollup failures caused due to content setup issues. Such registrations contain content that is set as scoring, but no mastery score is defined for the content, and no mastery score is defined in the offering where the content is attached.

After a learner completes the content, the system logs the status and score correctly, but completion does not happen. This is because the system does not have a mastery score to compare the learner's score against. Hence completion is not triggered.

The fix process cannot handle violations. The system does not enter a request in the fix queue for violations. It can only be resolved by correcting the setup that caused the issue.

You can correct the content setup as follows:

- Set the mastery score for the content in the offering.
- Correct the scoring property of the content, if a mastery score based completion is not required.



The above corrections do not trigger a completion check. Use Ad Hoc Detect and Fix Requests on page 187 to correct the learner registration status.

Viewing Violation Logs

For information about violations, refer to *Violations* on page 185.

To find **Detect and Fix** cycles containing violations:

- 1. Navigate to Content Administration > Repositories > Detect and Fix > Violation Log > Run List. The Detect and Fix - Content Setup Violation Log page appears.
- 2. Specify the date range in which you want to find Detect and Fix logs, and click Search. The search results display all Detect and Fix logs containing violations in the specified date range. For each log, it displays the run ID, run date, and number of violations in the log.
- 3. Click the View Details link for a log to display information about the violations reported in the log.

If one registration has two content modules, and violation is logged for both these content modules, then the Violation Log displays the Violation Count as 2. When a user clicks the View Details link for a Violation Log, details of both content modules are displayed.

You can also find violations for a specific content, or content format by navigating to Content Administration > Repositories > Detect and Fix > Violation Log > Search Violation.

Detect and Fix Dashboard

The **Detect and Fix** dashboard displays information about the latest scheduled run of the detect and fix tool. If a detect process is started, or is in-progress, then the dashboard displays information about this run. If there is no active detect process, then the dashboard displays information about the most recent detect process that occurred. For details about the information displayed on the dashboard, see:

- Table 26: Detect Process Details on page 182
- Table 28: Fix Process Details on page 183

To view details about earlier detect and fix runs, see *Detect and Fix Log Repository* on page 186.

Detect and Fix Log Repository

The Detect and Fix Log Repository stores information about all detect and fix runs.

You can search for **Detect and Fix** logs based on the following criteria:

- Date Range
- Run Status

The search results display all **Detect and Fix** logs that meet the specified search criteria.

To view the details of a particular **Detect and Fix** cycle, click on its **Run ID** link. It opens the **Detect and Fix - Run Detailed Summary** pop-up page. This page displays the following information:

- Summary of the Detect and Fix Run on page 186
- Transcripts Updated in the Detect and Fix Run on page 186
- Violations in Detect Run on page 186

Summary of the Detect and Fix Run

The **Summary** tab displays information about the selected **Detect and Fix** cycle.

Transcripts Updated in the Detect and Fix Run

The **Transcript Updates** tab displays information about learner registrations that have moved from enrollments to transcripts as a result of the detect and fix made in the cycle. It displays the following information:

- Learner whose transcript has been updated.
- The course ID, title, and offering ID for which the update was made.
- The offering completion status for the learner.
- The learner's score for the offering.
- The date when the learner completed the offering.

Violations in Detect Run

For information about violations, refer to *Violations* on page 185.

The **Violation Log** displays the following information:

- Learner whose registration contains rollup issues that is not fixed.
- The content that caused the rollup issue.
- The content version and content format.
- Scoring content or non scoring content.
- The cause for the failure.

Viewing Details of Registrations Updated

When content rollup failures are detected and fixed, it can result in the learner registrations moving from the enrollments to transcripts, as a result of the fix made.

The information about the number of registration that have been marked complete as successful or unsuccessful by the last **Detect and Fix** run are displayed on the **Dashboard**. To view details about the learner registrations updated by the tool, click on the number link on the **Dashboard**.

For example, to view all the registrations that have been marked complete with a registration status of successful, click its number link. The system displays the **Registrations Completed - Successfully** pop-up page. Similarly, click the number link to view registrations that have been marked complete as unsuccessful.

The Registrations Completed pop-up page displays the following information:

- Learner who completed the offering
- Course ID and Title
- Offering ID
- Completion status
- Score
- Completion Date

Details of registrations updated in previous detect and fix cycles are present in the Log Repository. For more information, see Transcripts Updated in the Detect and Fix Run on page 186.

Ad Hoc Detect and Fix Requests

Ad hoc detect and fix requests can be submitted for learner registrations that have completion issues. Such requests are placed in the fix queue. When the fix process runs, it processes these ad hoc requests, along with the items in the fix queue.

Request Statuses

Ad hoc detect and fix requests that are submitted can be in any one of the following statuses:

Table 31: Request Statuses

Request Status	Description	
New	The request has been submitted, but the fix process has not yet processed the request.	
In Progress	The fix process is currently processing the request.	
No Action Required	The fix process has processed the request, and no fix is needed for the request.	
Successfully Processed	The fix process processed the request and the learner registration has been updated successfully.	
Unsuccessfully Processed	The fix process processed the request, but could not resolve the issue.	

Submitting Ad Hoc Detect and Fix Requests

To submit an ad hoc request to detect and fix a learner registration:

- 1. Navigate to Content Administration > Repositories > Detect and Fix > Submit Detect Request. The Detect and Fix - Request Submission page appears.
- 2. Enter your search criteria and click Search. The Saba application displays learner registrations for the specified offering and learner.
- 3. Select the required registrations. If a detect and fix request has already been submitted, then you cannot select the registration and submit a request again.
- 4. Click **Submit Request**.

The Saba application enters a request in the fix queue to fix the content completion issue. When the fix process runs, it fixes the completion issues for the requested learner registrations.

Viewing the Status of an Ad Hoc Detect and Fix Request

To view the status of an ad hoc detect and fix request:

- 1. Navigate to Content Administration > Repositories > Detect and Fix > Detect Request Status . The View Detect Request Status page appears.
- **2.** Enter your search criteria and click **Search**.

The Saba application displays the learner registrations for which ad hoc requests have been submitted. The **Request Status** column displays the status of each request. For details about what these status indicate, see *Table 31: Request Statuses* on page 187.

Chapter

17

OLSA Integration

Topics:

- Overview
- OLSA Integration Process
- OLSA Integration Set Up
- OLSA Vendor Configuration
- Synchronization Set Up
- Synchronization of Assets
- Vendor State Management
- Content Management
- Known Limitations
- Synchronization Cycle Troubleshooting

Open Learning Services Architecture (OLSA) is a service oriented architecture initiative intended to simplify the effort required to integrate SkillSoft learning services with any Learner Management System (LMS) or portal of choice.

OLSA is a proprietary standard owned and managed by SkillSoft. OLSA is available for SkillSoft-hosted content installations.

Overview

This section covers the following topics:

- OLSA Services Supported by Saba on page 190
- What are Assets? on page 190
- Asset Integration Service on page 190
- Features of the Integration on page 190
- Benefits of the Integration on page 191

OLSA Services Supported by Saba

Saba provides support for the Asset Integration Service described in version 1.2 of the OLSA Integration Guide.

What are Assets?

An asset refers to SkillSoft hosted content. It is a lightweight representation of the actual content and contains metadata about the content.

An asset represents the following types:

Static content

This is traditional courseware.

Dynamic content

This is an URL pointing to some remote server feeding content. The tracking data goes to the OLSA system, and minimal tracking data is sent back to the Saba LMS.

Advanced content

This is content that launches other content. Tracking data goes to the OLSA system, and minimal tracking data is sent back to the Saba LMS.

The assets are imported into the Saba content repository using AICC metadata files.

Asset Integration Service

The Asset Integration Service of OLSA enables the Saba LMS to process external content and import it into the Saba content repositiory. The service provides capabilities for automating the management of the assets. This service enables Saba to initially retrieve all of the assets it is entitled to, and overtime keep the Saba system up-to-date with any changes to its entitlement, such as additions of new assets, updates to existing assets, and deletion of obsolete assets.

Assets imported using this service are compliant with the AICC standards. The launch URLS point back to the OLSA system. OLSA mediates access to the SkillSoft-hosted content.

Features of the Integration

The OLSA integration implements the following features in Saba:

- Bulk import of assets from OLSA-compliant content providers.
- Import of assets into the Saba Production Repository or Knowledge Base.
- Periodically update the Saba content repository to reflect the updates made to the SkillSoft hosted content.
- Synchronize the assets from the content publisher with the Saba content repository either manually when required, or automatically at a set frequency.
- Log management capabilities that enable content administrators to monitor the synchronization cycle.
- Support for multiple content vendors, and vendor state management.
- Bulk management of the imported assets.

Benefits of the Integration

The OLSA integration provides the following benefits:

- The Asset Integration service of OLSA enables bulk import of content hosted by third-party systems such as SkillSoft. The service provides AICC install files for SkillSoft-hosted content, and the Saba LMS uses the standard AICC mechanism to natively install, launch and track SkillSoft-hosted content.
- Provides a transparent process to load assets information into the Saba content repository and maintain it, reducing the effort required to import and maintain external content manually.
- Content imported into the Saba content repository from SkillSoft is available for subscription and consumption. The content launches using the AICC URL provided in the content metadata. The physical files reside in the external system. OLSA sends the tracking data to the Saba LMS.

OLSA Integration Process

Integration with an OLSA-compliant content provider involves the following steps:

1. OLSA Vendor Set Up

System administrators must perform the following tasks to set up the OLSA vendors:

- Enable the OLSA Integration functionality
- Set up notification events
- Set site level properties

For more information, see *OLSA Integration Set Up* on page 191.

2. OLSA Vendor Configuration

Content administrators must define OLSA vendors in Saba.

For more information, see *Configuring Content Vendors* on page 213.

3. Synchronization Set Up

Content administrators must set up the synchronization. The synchronization may be done manually at any time, or can be scheduled to run at a set frequency.

For more information, see *Synchronization Set Up* on page 194.

4. Synchronization the Assets

Integrate the assets from the OLSA-compliant content publishers with the Saba content repository.

For detailed information, see *Synchronization of Assets* on page 195.

5. Manage the Imported Assets

Content administrator can manage the assets imported from the OLSA system to the Saba content repository. The assets are AICC-compliant. The content physically resides in the OLSA system, and are not transferred to the Saba system. The launch URL points back to the OLSA environment.

For more information, see *Content Management* on page 201.

OLSA Integration Set Up

System administrators must set site level properties, enable OLSA functionality, and set up notifications for OLSA integration.

This section covers the following:

- Functionality Set Up on page 192
- Notification Set Up on page 192

• Site Level Property Set Up on page 193

Functionality Set Up

System administrators must enable the **OLSA Integration** functionality. This is the master switch that enables the integration of OLSA-compliant content publishers with the Saba system.

Once the **OLSA Integration** functionality is enabled, you can configure new OLSA content vendors and update existing ones.

If you disable the **OLSA Integration** functionality after you have created OLSA type content vendors, then the impact is as follows:

- · you cannot create new OLSA content vendors.
- · asset integration cycles of existing OLSA vendors are disabled.
- · existing OLSA vendors do not appear in the content provider field drop- down list during content import.
- existing content vendors appear in the content vendor search results.
- you can change the state of existing OLSA vendors.
- you can change the states of imported assets.
- learning offerings can subscribe to the assets that are already imported into the repository, and learners can launch the content.

Notification Set Up

Saba has predefined events that can be used to perform actions and to send e-mail notifications.



The Notification Server must be running for synchronization cycle to run.

Table 32: Predefined Events for Content Vendors

Event	Event Type	Description
Content Vendor State Changed	triggered	This event is triggered when a content administrator changes the state of a content vendor.
Trigger Synchronization	triggered	This event is triggered when a content administrator initiates a manual synchronization of the assets. Note: This event must be kept enabled to trigger manual synchronization.
Synchronization Cycle Complet~ ed	triggered	This event is triggered when the system completes the synchro~ nization cycle.
Synchronization Cycle Terminat~ ed	triggered	This event is triggered when the system terminates the synchro~nization cycle. This may happen when another instance of the synchronization process is active.
Initiate Synchronization	periodic	This event initiates the automatic synchronization of assets at the frequency set by the content administrator. For example, if the automatic synchronization has been set to occur every 2 days, then this event initiates the synchronization of assets every alternate day.

Event	Event Type	Description
		Note:
		This event is disabled by default. If automatic synchroniza- tion is set up, then this event must be enabled.

Site Level Property Set Up

System administrators must set the following site level properties:

Synchronization Process Step Latency Multiplier

Default value: 1

Possible values: Any positive integer

This latency period in the synchronization cycle is calculated by multiplying this integer value by ten minutes. The synchronization process terminates if any synchronization process step is inactive for a period greater that the latency period, and another synchronization cycle is initiated.

For example, if the property Synchronization Process Step Latency Multiplier is set to 2, then the latency period for each synchronization step is set to 20 minutes in the system. When any process step is inactive for more that 20 minutes, and another synchronization cycle is initiated, then this synchronization process terminates.

Synchronization Wait Period Between Attempts

Default value: 2 minutes

Possible values: positive integer in minutes

This property configures the wait period between communication calls to the OLSA system. In the synchronization process, the Saba system communicates with the OLSA system during the following steps:

- Initiating handshake
- Polling
- Acknowledging

For example, if the property Synchronization Wait period Between Attempts is set to 3, then the system waits for 3 minutes before it attempts to communicate with the external system again for a handshake, or to poll for the assets zip file, or to send an acknowledgement.

Synchronization Number of Attempts

Default value: 10

Possible values: Positive integer

This property configures the maximum number of times that Saba attempts to communicate with the OLSA system for a handshake, for polling, or for sending an acknowledgement.

For example, if the property **Synchronization Number of Attempts** is set to 7, then the maximum number of times that Saba attempts to communicate with the OLSA system during a process step is 7.

Synchronization Call Timeout Period

Default value: 3 minutes

Possible values: Positive integer in minutes

This property configures the binding timeout period in minutes for communication calls to OLSA system.

For example, if the property Synchronization Call Timeout Period is set to 5, then the communication calls to OLSA system time out after 5 minutes.

Temporary Directory for the file upload and download

This property specifies the temporary directory used by all content services and components. The contents from the OLSA system is downloaded to this temporary directory. In a clustered environment, specify a shared network directory that is accessible by all the nodes in the cluster.

Asset Store Configuration

Content administrators must ensure that the asset store is configured correctly. The **Content File Access URL** and the **Physical Directory** must be set correctly. The asset store is used during content import. It serves as an archive for uploaded content. For information on how to configure the asset store, refer to *Configuring the Asset Store* on page 134.

OLSA Vendor Configuration

You can configure OLSA vendors for the integration of OLSA-compliant content providers with Saba. For detailed information about how to configure OLSA vendors and manage them, refer to the chapter *Configuring Content Vendors* on page 213.

Synchronization Set Up

The asset integration service of OLSA enables Saba to import content provided by OLSA-compliant content providers into the Saba content repository, and maintain the assets over a period of time. This is done by synchronizing the assets from the external OLSA system with Saba. Before you synchronize the assets, you must set up the synchronization.

The synchronization cycle can run in the following modes:

- Automatic Synchronization on page 195
- Manual Synchronization on page 195

To set up the synchronization:

- 1. Navigate to Content Administration > Configuration > Vendor Setup. The Content Vendor page is displayed.
- 2. Find the required OLSA vendor and click on the vendor name link to edit the vendor.
- 3. Click Synchronization Setup.
- **4.** In the **Notify Cycle Status To** field, specify the person who needs to be notified regarding the synchronization cycle status.
- **5.** In the **Default Content Inventory Setting** section, specify the following fields:

Table 33: Default Content Inventory Setting for Synchronization

Field	Description
Player Template	Player templates control the visual presentation of the Online Player during runtime. These templates enforces a level of standardization for content delivered using Saba Online Player. Select a player template using the player template picker.
Security Domain	The security domain for the imported asset. To enter a security domain, click the "picker" icon. Note: Users will not be allowed to use the asset unless they have permissions to access the specified security domain. To make the content available to all users, choose the 'world' domain.
Destination Folder	The folder within the content repository where the asset is imported to. The assets can be imported to a folder within the Production Repository or Knowledge Base.

6. Click Save.

Automatic Synchronization

Automatic synchronization is triggered automatically by the system when the scheduled interval for the periodic event 'Initiate Synchronization' elapses.



Note:

For automatic synchronization, the periodic event 'Initiate Synchronization' must be enabled by your system administrator. This event is disabled by default.

To set up automatic synchronization:

- 1. Set up the synchronization by following steps mentioned in Synchronization Setup on page 194.
- 2. Select the check box Automatic Catalog Synchronization.
- 3. The synchronization frequency determines the frequency at which the synchronization cycle runs. Specify the synchronization frequency as follows:
 - a. In the Occurs field, select either Daily or Weekly. If you select Daily, enter the number of days at after which the cycle needs to run. If you select Weekly, select the day of the week when the cycle needs to run.
 - **b.** Specify the **Synchronization Start Date**.
 - c. Specify the Synchronization Start Time.
- 4. Click Save.

Manual Synchronization

You can perform a manual synchronization of the assets at any time, even if automatic synchronization is set up.



Note:

The triggered event 'Trigger Synchronization' must be kept enabled for the system to initiate the manual synchronization cycle.

To manually synchronize the assets:

- 1. Set up the asset synchronization by following steps mentioned in *Synchronization Setup* on page 194.
- 2. Click the **Synchronize Now** button from any one of the following navigation paths:
- 3. Content Vendor Details page > Synchornization Setup tab
 - Content Vendor Details page > Synchronization History tab > Synchronize Now
 - Content Vendor page > Actions link for a vendor

Synchronization of Assets

Using the Asset Integration service of OLSA, Saba can synchronize the assets from an external system that provides OLSA-compliant content with the Saba content repository.



Only one synchronization cycle can run at any point of time.

This section covers the following topics:

- Synchronization Process Steps on page 196
- Synchronization Process States on page 196
- Bulk Import of Assets on page 197
- Periodic Updates on page 197
- Synchronization Cycle Logs on page 198

• Synchronization Fault Management on page 199

Synchronization Process Steps

The synchronization process involves the following steps:

1. Queued

In case of manual synchronization, the process is queued up for the Notification Server when the content administrator clicks the **Synchronize Now** button. In case of automatic synchronization, no entry is created in the notification queue. The synchronization process skips this step and goes directly to the next step 'In Progress'.

2. In Progress

In case of manual synchronization, the posted message is picked up by the Notification Server. In case of automatic synchronization, when the scheduled interval for a periodic event 'Initiate Synchronization' elapses, Notification Server initiates the processing of this event.

3. Initiating Handshake

The Saba system initiates the handshake with the OLSA system that provides the content.

4. Polling

The Saba system polls for the assets zip file from the OLSA system. Be default, the system waits for two minutes between each polling attempt. The default number of polling attempts is set to 10. System administrators can configure the number of polling attempts, and the wait period between the attempts. For more information, see *Site Level Property Set Up* on page 193.

5. Downloading Contents

The Saba system downloads the Assets zip file from the OLSA system to the temporary directory specified in the content properties file. The zip file contains an entitlement status file at the top level, and asset folders for each unique asset. Each asset folder contains five files with extensions .crs, .des, .au, .cst, and .ort.

6. Validating Contents

Saba validates the contents sent by the OLSA system.

7. Importing Contents

Saba system imports the contents into the Saba content repository. The assets are imported to location specified in the **Destination Folder** field in the **Synchronization Setup** page.

8. Acknowledging

Saba system sends an acknowledgment to the OLSA system stating if the synchronization cycle ran successfully or failed. If import of any assets fail, then a failure acknowledgement is sent to OLSA.

Note:

The synchronization cycle does not stop in case of individual import failures. System continues to process subsequent assets.

Synchronization Process States

The synchronization process can be in one of the following states:

Table 34: Synchronization Process States

State	Description
Initiated	The synchronization process state is initiated when a content administrator triggers a manual synchronization of the catalog by clicking the Synchronize Now button on the Synchronization Setup page.
	Note:
	There is no initiated state for an automatic synchronization cycle.
In Progress	The synchronization process state is initiated when any one of the following events occur:
	 the notification server picks up the posted message, and starts the manual synchronization process.
	the system triggers automatic synchronization when the scheduled interval for the periodic event 'Initiate Syncrhonization' elapses.
Completed with Errors	When the synchronization process completes, but import of some assets fail.
Completed Successfully	When the synchronization process completes successfully, and all assets are successfully imported.
Failed	When a failure occurs, and no asset is imported successfully.
Terminated	A synchronization cycle is terminated when any one of the following events occur:
	 the synchronization process is inactive for a period greater than the defined latency period, and another process is initiated, then the new process terminates the inactive process. For details about latency period, see <i>Site Level Property Set Up</i> on page 193. if an automatic synchronization cycle is initiated when a manual synchronization cycle is active, the new automatic synchronization cycle terminates itself.

Bulk Import of Assets

When the synchronization cycle runs for the first time, the system performs a bulk import of all the entitled assets from the OLSA-compliant content provider.

The imported files are stored in **Destination Folder** specified in the Synchronization Setup.

In the Saba LMS, the state of the imported assets are 'Published'. Like any content inventory item in Published state, offerings can subscribe to these assets, and learners can launch them.

Periodic Updates

Periodic updates ensure that the Saba LMS is up-to-date with the content provider's assets. You can set up automatic synchronization to run at a required frequency, or you can manually synchronize the catalog any time to reflect the changes in the content provider's assets.

After the first synchronization cycle that performs a bulk import of the assets, the subsequent synchronization cycles only import the changed assets. The subsequent synchronization cycles update the Saba content repository to reflect changes in the content provider's assets such as:

New Assets

Assets that are added to the content provider's system after the last synchronization cycle ran. The new assets are imported into the Saba content repository.

Modified Assets

Assets that are modified after the last synchronization cycle ran. The modified assets are re-imported into the Saba content repository.

Not-entitled Assets

Assets that have changed to not-entitled after the last synchronization cycle ran. The status of these assets in the Saba content repository change to 'Purged'.

Table 35: Vendor States and Impact on Synchronization Cycle on page 198 summarizes all the asset states in the OLSA system, and the corresponding states in the Saba content repository.

Table 35: Vendor States and Impact on Synchronization Cycle

Asset State (in OLSA system)	Description Content Inventory St Content Repository)	
Entitled	The synchronization cycle imports this content.	Published
Not-Entitled	The synchronization cycle does not import this content. If the asset state has changed after it was imported into the Saba content repository, then the next synchronization cycle updates the content status in the Saba repository to purged, so that the content is not available for subscriptions and consumption.	Purged
Modified	The synchronization cycle reimports modified assets. The metadata of the content inventory item is updated to reflect the changes to the asset in the OLSA system. Note: If reimport fails, then the content inventory item in the Saba content repository is flagged as OLSA Asset Update Failed and a warning is displayed on the Content Inventory Details page. Such content is not available for consumption, although it is in published state in the Saba content repository. It is available for subscription as it would get imported correctly in the next synchronization cycle. You can manually uncheck the OLSA Asset Update Failed checkbox, but you cannot check it again, once you have saved the con~tent.	Published

Synchronization Cycle Logs

The **Synchronization History** tab displays details about each synchronization cycle. You can view the following information on this page:

- Start date/time of each synchronization cycle
- · End date/time of each synchronization cycle
- Process cycle status
- The total number of assets in the cycle.
- The number of assets processed, the number of assets that failed, and the number of assets processed successfully.
- The last process step that occurred in the cycle, and the date and time when it occurred.
- The process message stating the reason for failure if any.

For any synchronization cycle, you can perform the following tasks from the Actions column:

- Viewing Asset Logs for a Synchronization Cycle on page 199
- Downloading the Assets File on page 199
- Deleting Synchronization Cycle Logs on page 199.

Viewing Asset Logs for a Synchronization Cycle

You can view the logs of all assets that were downloaded in a synchronization cycle from the **Synchronization History** page by clicking Actions > View Assets. On this page, click the Show failed assets only checkbox to view only the assets that failed in the synchronization cycle.

You can delete the logs of individual assets as follows:

- click the **Delete** link in the **Actions** column for the asset.
- Select the asset logs that need to be deleted, and click the **Delete** button.

Downloading the Assets File

You can download the assets zip file that was sent from the content provider for a synchronization cycle, and store it on your disk or network for booking purposes.

To download the assets file in a synchronization cycle, click the Actions link for the cycle and click Download Assets File.

Deleting Synchronization Cycle Logs

From the **Synchronization History** page, you can delete the synchronization cycle logs that are no longer needed.

To delete a synchronization cycle log:

- click the Delete link in the Actions column for the synchronization cycle.
- Select the cycle logs that need to be deleted, and click the Delete button.

Synchronization Fault Management

You can recover the failed assets by performing a manual synchronization of the assets. The synchronization reimports the modified assets, including the failed assets.



You cannot recover individual failed assets.

The system maintains the failed asset course structure files as backup for book-keeping purposes. The zip file containing the asset files is archived for each cycle using Saba's attachments mechanism. This file is backed-up in all cases.

Vendor State Management

An OLSA type content vendor in Saba can have one of the following statuses:

Table 36: OLSA Vendor Statuses

Status	Description	
Draft	This status indicates that the content vendor is not active and cannot be used. OSLA type vendors in this state do not provide asset integration services.	
	To activate a draft vendor, you must manually change the content vendor status to Active . You can delete content vendors in draft state.	
Active	The status of the content vendor once activated. The content vendor services are available. OSLA type vendors provide asset integration services. You can change the Active state of a OLSA vendor to Suspended or Discontinued .	

Status	Description
Suspended	This state indicates that the services provided by the content vendor are temporarily on hold. Catalog synchronization cycle is suspended. The content imported from the vendor is On Hold . Catalog offerings cannot subscribe to the content, and learners cannot launch the content. The suspended state of a content vendor can be changed to Active or Discontinued .
Discontinued	This state indicates that the services provided by the content vendor are permanently disabled. Catalog synchronization services are not available. Once a content vendor is discontinued, the status of the content vendor cannot be changed. Change the content vendor status to discontinued only if you do not intend to use the content vendor henceforth.

Table 37: Vendor States and Impact on Synchronization Cycle on page 200 lists the content vendor states in Saba and the impact it has on the catalog synchronization cycle and the imported assets.

Table 37: Vendor States and Impact on Synchronization Cycle

Vendor State	Synchronization Cycle	State of Imported Assets
Draft	Not available	No imported assets, as the asset integration services not available.
Active	Enabled	The imported assets can be in one of the following states: • published • on hold • purged
Suspended	Suspended	The imported assets in the Published state change to On Hold .
Discontinued	Disabled	While discontinuing the vendor, the system gives you the option to either purge the imported content, or not update the content status. If the status of im~ported content is not updated, then the content is available for subscription and consumtion, although the vendor status is discontinued.

For information about changing vendor states, see:

- Suspending a Content Vendor on page 200
- Discontinuing a Content Vendor on page 201

Suspending a Content Vendor

When you suspend an OLSA type content vendor, the services provided by the content vendor are temporarily on hold. The catalog synchronization cycle is suspended. The content imported from the vendor is **On Hold**. Catalog offerings cannot subscribe to the content, and learners cannot launch the content.

You can suspend a content vendor by changing the content vendor **Status** to **Suspended**.

The suspended state of a content vendor can be changed to **Active** or **Discontinued**.

Discontinuing a Content Vendor

When you discontinue an OLSA type content vendor, the services provided by the content vendor are permanently disabled. OLSA type vendors in discontinuted state do not provide asset integration services.

You can discontinue a content vendor by changing the content vendor Status to Discontinued. You can discontinue a vendor from the Content Vendor page, by clicking the Discontinue Vendor link that appears when you click the **Actions** link for the vendor.



Note: Once a content vendor is discontinued, the status of the content vendor cannot be changed. Change the content vendor status to discontinued only if you do not intend to use the content vendor henceforth

Content Management

Saba provides bulk content management capabilities for assets that are imported from the OLSA-compliant system. When the entitled assets are imported in the Saba content repository, the content inventory state of the imported assets are **Published**. You can change the state of all the imported assets to either **Purged** or **On Hold**.

For bulk management of imported content:

- 1. Navigate to Content Administration > Configuration > Vendor Setup. The Content Vendor page is displayed.
- 2. Find the required OLSA vendor and click on the vendor name link to edit the vendor.
- 3. Click the Content Management tab. This page displays the number of assets that were imported from the content provider, and the state of the content. For details about the content states, see *Imported Content States* on page 201.
- **4.** You can change the status of imported content as follows:
 - For content in **Published** state

Click the **On Hold** link in the **Change Status to** column to change the status of all the content inventory items from **Published** to **On Hold**.

Click the **Purge** link in the **Change Status to** column to change the status of all the content inventory items from Published to Purged.

For content **On Hold**

Click the **Published** link in the **Change Status to** column to change the status of all the content inventory items On Hold to Published.

For content in **Purged** state

The purged state of content inventory items cannot be changed.

Imported Content States

Content that is imported from a content provider into the Saba content repository can be one of the following states:

Table 38: Content Inventory States for Imported Assets

Content Inventory State	Description	State Changes Possible
Published	The content is available for subscription and consumption. Content administrators can edit the content. This is the state of entitled assets when imported to the	Status can be changed to either On Hold or Purged .
	content repository.	

Content Import

When you import content from a content provider into the Saba content repository, the content metadata is stored in the repository. The physical deployment resides on the content publisher's side. You can update and delete the imported content.

Content administrators can control the look and feel of the content during the runtime experience, by choosing an appropriate player template for the content. Player templates control the visual presentation of the Saba Online player during runtime.

Content Launch

The content launches in the Saba Online Player using AICC launch. The launch URLS point back to the OLSA system. OLSA mediates access to the SkillSoft-hosted content. OLSA supports secure content delivery

The OLSA integration supports the following content launch functionality provided by Saba:

Content launch attempt limit

Catalog administrators can set an attempt limit for the content attached to an offering. Saba checks the number of launches that an user has attempted, and prevents content launch after the set attempt is reached.

Multiple launch prevention

Saba prevents multiple sessions of the same content by an user.

• Result update on content completion

On completion of content, the page refreshes with the results. As content is launched using AICC protocol, results communication to Saba LMS is synchronous.

Launch from Enrollments page and Transcripts page

For a learner, system supports content launch from the Enrollments page, and from the Transcripts page on offering completion.

Content Tracking and Rollup

The external engine tracks the content and processes the results. Tracking data is sent back to the Saba LMS using AICC protocol.

Saba does a macro-rollup of the content by examining the status and score of each content object in a learning offering, and produces a score and status for the entire offering. Learners can view the results from Saba.

As the OLSA engine tracks the content and processes the results, the content errors are not tracked. Saba captures the following errors that may occur in results data handling and rollup:

- Auto synchronization cycle errors
- Result reporting errors
- Rollup errors

Known Limitations

OLSA integration has certain limitations. The integration does not support the following functionality that Saba provides:

- ESignature auditing on content completion not supported.
 - ESignature audits the action of content completion. AICC content format does not support esignatues.
- Offline content delivery not supported

The Saba Offline Player supports SCORM 1.2 content format. As the content imported from a content provider in the AICC content format, it cannot be delivered offline.

Synchronization Cycle Troubleshooting

Table 39: Synchronization Cycle Errors on page 203 lists the possible errors that may occur during a synchronization cycle, and the action you need to take if you encounter an error.

Table 39: Synchronization Cycle Errors

Error Condition Process Message		Resolution or Workaround	
Incorrect Access URL (Host incorrect)	(43330) Failure occurred during OLSA communi~cation.java.net. UnknownHostException : <host~name></host~name>	Provide the correct access URL, includ- ing the host name as provided by the content provider.	
Incorrect Access URL (Host correct but rest of the URL incorrect)	(43330) Failure occurred during OLSA communi~cation. The AXIS engine could not find a target service to invoke! targetService is Olsa_	Provide the correct access URL as provided by the content provider.	
Incorrect Customer ID (43330) Failure occurred during OLSA communi~ cation.WSDoAllReceiver: security processing failed; nested exception is: org.apache.ws.securi~ ty.WSSecurityException: The security token could not be authenticated or authorized.		Provide the correct customer id as provided by the content provider.	
Incorrect Password	(43330) Failure occurred during OLSA communi~cation.WSDoAllReceiver: security processing failed; nested exception is: org.apache.ws.securi~ty.WSSecurityException: The security token could not be authenticated or authorized.	Provide the correct password as provid~ ed by the content provider.	

Error Condition	Process Message	Resolution or Workaround
Network socket timeout exception upon OLSA calls	(43330) Failure occurred during OLSA communi~cation.java.net.SocketTimeoutException: Read timed out	On receiveing this error, Saba attempts to communicate with the OLSA sys~tem again automatically. The number of attempts and the wait period be~tween the attempts is governed by the following site level properties: • synchronization wait period • synchronization number of at~tempts If the error persists after the stipulated number of attempts, then the appropri~ate error is logged. Run the synchro~nization cycle after a periiod of time.
The process succeeded but network socket timeout ex~ception occurred while sending acknowledgement back to OLSA.	Error occurred while sending back acknowledg~ment to OLSA: (43330) Failure occurred during OLSA communication. java.net.SocketTimeou~tException: Read timed out.	In this case, the assets zip file is downloaded, the contents validated and imported into the Saba content repository. The socket timeout exception occurs at the time of sending acknowledgement to OLSA. If the error persists after the stipulated number of attempts, then the entire process is termed as a failure.
Asset Store not set correct~ly	(43073) Failed to import Content Inventory: Communicating a Shared Vision (43209) Failed to generate TOC. Error: "java.io.FileNotFoundEx~ ception: http://gauravr/pri~ vate_/sabacr148716598635102304/csf.xml". Please make sure the Asset Storage is config~ ured correctly.	Configure the Asset Store correctly before running the synchronization cycle.
Media repository not set correctly	(43073) Failed to import Content Inventory: Communicating a Shared Vision (43106) Error in local Media Repository : the local directory ' <drive>:\<contentservers_>\private_content_serv~ er' does not exist.</contentservers_></drive>	Set the Media repository correctly be- fore running the synchronization cycle.
Process inactive for a long time. This may occur due to fatal reasons such as the database, application server, or the notification server crashing, or due to non-fa~tal reasons such as process~ing taking too long on ac~count of contention of re~sources etc.	Process terminated on account of being inactive for a period greater than the defined latency period.	After recovering from the fatal condiations, if the synchronization process is inactive for a period greater than the defined latency period, and if another process is initiated, then the new process terminates the inactive process.

Chapter

18

Content Delivery Vendor Integration

Topics:

- Content Delivery Vendor Integration Process
- Content Delivery Vendor Set Up
- Content Delivery Vendor Configuration
- Supported Content Formats
- Content Import
- Content Launch
- Content Tracking and Rollup
- Known Limitations
- Troubleshooting

Saba provides the ability to integrate with third party content vendors for online and offline delivery of SCORM compliant content.

The Saba Content Integration Framework (CIF) enables delivery of any version of SCORM compliant content.

Content Delivery Vendor Integration Process

Integration with a content delivery vendor involves the following steps:

1. Content Delivery Vendor Set Up

System administrators must set up the CIF Integration functionality.

For more information, see *Content Delivery Vendor Set Up*.

2. Configuration of Content Delivery Vendors

Content administrators must configure content delivery vendors for use in Saba.

For more information, see *Configuring Content Vendors* on page 213.

3. Import of Content into the Saba Content Repository

Content files and content metadata reside in the Saba LMS. During the content import process, content administrators specify the delivery vendor that launches and tracks the content.

For more information, see *Content Import*.

4. Content Launch

When a learner launches the content, the content plays in the content vendor player that was set during the import of content.

For more information, see *Content Launch*.

5. Content Tracking and Rollup

When learners take the content, the tracking data and completion data are stored in the content vendor engine. When a learner exits the content vendor player, the tracking data and completion data are sent back to the Saba LMS.

For more information, see *Content Tracking and Rollup*.

Content Delivery Vendor Set Up

System administrators must enable the **CIF Integration** functionality. This is the master switch that enables the integration of content delivery vendors with Saba.

Once the **CIF Integration** functionality is enabled, you can configure new content delivery vendors and update existing ones.

The impact of disabling the **CIF Integration** functionality after the creation of CIF type vendors is as follows:

- · you cannot create new CIF vendors.
- you can edit existing CIF vendors.
- existing CIF vendors do not appear in the delivery vendor field drop- down list during content import.
- existing content vendors appear in the content vendor search results.
- imported content can be launched using the delivery vendor player.

Content Delivery Vendor Configuration

You can configure CIF type vendors for the delivery of SCORM content. For detailed information about how to configure content delivery vendors, refer to the chapter *Configuring Content Vendors* on page 213.

Note: The CIF type vendors do not have state management. The only state for a CIF vendor is the Active state.

Supported Content Formats

Content delivery vendor integration supports the following content formats:

- Deployed SCORM
- SCORM Package

Content Import

SCORM content that needs to be launched in the content vendor player should first be imported into the Saba content repository. During the content import process, content administrators must specify the delivery vendor. The content is delivered and tracked by the specified vendor.



Once content is imported, the delivery vendor of the content cannot be changed.

To specify the delivery vendor during import of content into the Production Repository or Knowledge Base:

- 1. Select Content Administration from the Go To: drop-down menu.
- 2. Select the repository where you want to import the content to: **Production Repository** or **Knowledge Base**.
- 3. Select the appropriate content folder.
- **4.** Click **Import**. The import wizard appears.
- **5.** Enter the following content details:

Table 40: Import Content Wizard: Content Details

Field	Description
Name	A name for the content object.
Security Domain	The security domain for the content object. To enter a security domain, click the "picker" icon. Note: Users will not be allowed to use the content object unless they have permission to access the specified security domain. To make the content available to all users, choose the "world" domain.
Content Format	Choose any one of the following content formats: • SCORM Package • Deployed SCORM The integration supports delivery of any version of SCORM compliant content.
Player Template	This field defines the player template for the Saba Online Player. Note: For a content delivery vendor, this field is ignored.
Content Type	Choose the content type from the drop-down list of system defined content types. This field is optional.

Field	Description		
Version Number	The version number for the content. The imported content has the specified explicit version number associated with it. This field is optional.		
Expiration Date	The date on which the content expires. The imported content will not be available for sub~scription after this date. However, content that is already associated with an offering, can be consumed by users after the expiration date. After this date, the content will have a status of expired . This field is optional.		
Parent Folder	The folder within the repository where the content is imported.		
Content Provider	The content vendor that provides the content. You need to specify this field only if you are importing content from an external system. Note: This field is used by the OLSA integration functionality. For content delivery vendors, this field is ignored.		
Delivery Vendor	Choose the name of the delivery vendor from the drop-down list of content vendors config~ured in your system. Note: You cannot change the delivery vendor after content import.		

6. Click Next.

- 7. Depending on your content format, specify the following:
 - For Deployed SCORM, in the **Manifest Access URL** field, enter a URL pointing to the IMS Manifest file already deployed on the content server.
 - For SCORM package, browse and select the package file to be imported, and specify the content server onto which you want to unpack the content package.



The SCORM Launch servlet must be installed on the content server machine.

Click Import.

Content delivery vendor integration does not support the following fields and check boxes:

- Player Template field
- Content Provider field
- Security Context field
- Launch URL field
- **Deployed on secure server** check box
- E-Signature Required check box

Any data in these fields and check boxes are ignored. For more information about the limitations of integrating with content delivery vendors, see *Known Limitations*.

Content Launch

When learners take content, the player that launches the content depends on the delivery vendor set for the content inventory item.

If the content inventory item has the **Available Offline** check box selected, then learners can take the content offline. *Table* 41: Settings that determine the content player that launches the content on page 209 summarizes the SCORM version and content inventory settings that determine the player that launches the content.

Table 41: Settings that determine the content player that launches the content

SCORM Version	Delivery Vendor	Available Offline	Content Player
SCORM 1.2	Saba	No	Saba Online Player
		Yes	Learners can choose to launch the content in the Saba Online Player or Saba Offline Player
	External Vendor No		Content delivery vendor player
		Yes	Learners can choose to launch the content in the external vendor's online player or of~ fline player
	Native	Not supported	Not supported
		Not supported	Not supported
SCORM 2004	Saba	No	Saba Online Player
		Not supported	Not supported
	External Vendor	No	Vendor Online Player
		Yes	Learners can choose to launch the content in the external vendor online player or offline player
	Native	Not supported	Not supported
		Not supported	Not supported

End User Licence Agreement

The first time a learner launches content in a content vendor player, the End User Licence Agreement is displayed. Clicking the I Accept button launches the content. This message is displayed to each learner for the first content launch using a vendor player. The message is not displayed to a learner for subsequent content launches in the vendor player. Clicking the I Do Not Accept button does not launch the content.

Content Tracking and Rollup

When learners take content in the vendor player, the tracking and completion data are stored in the vendor engine. This engine owns the content tracking service that tracks users' content and computes results. The data is sent to the Saba LMS. Saba's rollup service checks for completion and marks the learning item complete. Learners can view results from Saba. The following table lists the different levels of rollup and the engine that handles the rollup, when learners play content in a content vendor player:

Rollup Level	Engine
Micro Level Rollup	Content vendor
This is a content level rollup that combines the status and scores of each lesson in a content object and produces an overall status and score for the entire object.	
Macro Level Rollup	Saba
This is an offering level rollup that combines the status and scores of each content object in a learning offering, and produces a single status and score for the entire offering.	

Known Limitations

Content delivery vendor integration has the certain limitations. The integration does not support the following functionality that Saba provides:

• Vendor Online Player configuration not supported.

Content administrators cannot control the look and feel of the content in the vendor player during the runtime experience, as the content cannot be associated with player templates. Player templates control the visual presentation of the Saba Online player during runtime.

• Cannot launch assessments authored using Saba's Assessment Authoring tool.

Content vendor players cannot launch assessments that are authored using Saba's Assessment Authoring tool. Only the Saba Player supports this.

• E-signature to audit content completion not supported.

E-signature audit the action of content completion. This ensures that a learner signs off to indicate content completion. Content vendor players do not support e-signatures.

• Secure content delivery not supported.

Content vendor players do not have the ability to prevent unauthorized content access.

• Content Communication Log not supported.

Content administrators cannot view the Content Communication Log for content inventory items that have the delivery vendor set to an external vendor. Instead, they can preview the content to view the communication log that the vendor engine provides.

SCORM Conformance Mode not supported.

SCORM Conformance is a site level property that is set by system administrators. This property specifies whether to check for strict compliance at runtime when SCORM content is accessed/launched by a learner. The SCORM Conformance Mode setting has no impact on content delivery using a content vendor.

· Delay in receiving results data

On completion of content, Saba displays the results. There may be a delay in displaying the results data, as it involves a call to an external web service, and the data sent from the content vendor side may be large.

• Tracking data deleted on reimport of content

When a content administrator reimports content into the content repository, all existing tracking data for the content is deleted. During the reimport process, a message is displayed stating that existing tracking data needs to be cleared for proper functioning. Clicking OK reimports the content, and deletes all existing tracking data. Clicking Cancel aborts the reimport process.

• Ability to take content partially offline and resume online not supported

External content delivery vendors may not provide the ability to synchronize tracking data between online and offline content delivery. However, for a single attempt, online suspended attempt can be taken offline. Also, offline suspended attempt can be taken online after synchronizing the data.

Troubleshooting

This section provides troubleshooting guidelines for the following areas:

- Content Vendor Configuration
- Content Import
- Content Launch
- Results Reporting

Content Vendor Configuration

You can configure the content delivery vendor from **Content Administration** > **Configuration** > **Vendor Setup** page.

Content Import

Any errors that occur during content import or update, are displayed during the content import process. The import process also displays error messages from the content delivery vendor system.

Content Launch

Content launch may fail due the following reasons:

- Incorrect launch URL configuration
- Content vendor system not available

Results Reporting

You can view the errors that may occur during the processing of runtime data and content rollup on the content delivery vendor side from Content Administration > Repositories > Tools > Content Error Log page.

Failure in processing results from content delivery vendors are tagged as Content Results Service failure.

Chapter

19

Configuring Content Vendors

Topics:

- Types of Content Vendors
- Configuring a New Content Vendor
- Finding Content Vendors

This chapter describes how to configure content vendors.

Content vendors in Saba are used for the following:

- to provide third-party content for use by the Saba LMS.
- to deliver SCORM-compliant content online or offline.

Types of Content Vendors

Content vendors in Saba are classified into the following types:

OLSA

OLSA type content vendors provide asset integration services for OLSA compliant content publishers.

To define new content vendors of type OLSA, the OLSA Integration functionality must be enabled by your system administrator.

For detailed information about integrating with OLSA compliant content vendors, refer to the chapter OLSA Integration on page 189.

CIF

Content vendors of type CIF (Common Integration Framework) provide content delivery services for SCORM-compliant content.

To define new content delivery vendors, the CIF Integration functionality must be enabled by your system administrator.

For detailed information about integrating with content delivery vendors, refer to the chapter Content Delivery Vendor *Integration* on page 205.

Saba

The system provides two predefined content vendors of type Saba: Native content vendor and Saba content vendor. The Native content vendor provides delivery of non-standards-compliant content in the default native browser, such as the Internet Explorer browser. The Saba content vendor provides delivery of both standards-compliant content and non-standards-compliant content using the Saba players.

You cannot create new content vendors of type Saba or edit the existing Saba type content vendors.

Configuring a New Content Vendor

You can configure new content vendors of the following types:

OLSA

Provides asset integration services for OLSA-compliant content publishers. The assets are imported into the Saba content repository. Learning offerings can subscribe to the content, and learners can launch the content in the Saba player or a native browser.

CIF

Provides content delivery services for SCORM-compliant content.

To configure a new content vendor:

- 1. Navigate to Content Administration > Configuration > Vendor Setup. The Content Vendor page is displayed.
- 2. Click the New Content Vendor link.



Note:

This link is displayed only if the **OLSA Integration** functionality or the **CIF Integration** functionality is enabled by your system administrator.

3. Enter the following fields for the content vendor:

Table 43: Vendor Configuration Fields

Field	Required?	Description
Name	Yes	Enter the name of the new content vendor.
Domain	Yes	Specify the domain of the content vendor using the domain picker.
Description	No	Enter a description for the content vendor.
Provider	No	For OLSA type vendors, specify the name of the content provider.
Status	Yes	Select the content vendor status from the drop-down list. For OLSA type vendors, you can specify either Draft status or Active status. For CIF type vendors, you can only specify Active status.

4. In the Vendor Integration Model section, select the Vendor Type from the drop-down list of system defined vendor types.



Vendor type called OLSA is displayed in the Vendor Type drop-down list only if the OLSA Integration functionality is enabled by your system administrator. Vendor type called CIF is displayed in the Vendor Type drop-down list only if the CIF Integration functionality is enabled by your system administrator.

For **OLSA** type content vendors:

- a. Specify the Customer ID.
- **b.** Specify the **Password**.

The Customer ID and Password are provided by the OLSA-compliant content provider. It is used to connect to the server that provides the content.

c. Enter the Access URL. This is the import service URL provided by OLSA-compliant content provider. Saba LMS uses this URL to connect to the external vendor system.

For **CIF** type content vendors:

- a. Specify the Access URL. This URL communicates with the web service of the delivery vendor. Saba LMS uses this URL to connect to the external vendor system.
- b. Specify the Launch URL. This URL is used during the launch of content using the delivery vendor.
- 5. Optional: Click the **Test URL** button to test the connection to the specified URL. The **Content Vendor Test Access URL** pop-up page opens stating if the system is able to connect to the specified site successfully. Click **Close**.
- 6. Click Save.

Finding Content Vendors

To search for a particular content vendor, navigate to Content Administration > Configuration > Vendor Setup. The Content Vendor page is displayed. You can search by any or all of the following criteria:

Search Field	Description	
Name	The name of the content vendor.	
Status	The status of the content vendor. For example, content vendors that are in Draft status, Active status, Suspended status, or Discontinued status.	
	Select the status from the drop-down list.	

Search Field	Description
Vendor Type	Select the vendor type from the drop-down list of system defined vendor types.
Access URL	Specify the access URL. This is the service URL provided by the external vendors. Saba LMS uses this URL to connect to the external vendor system.
Provider	The system that provides asset integration services or delivery services.

Enter your search criteria and click **Search**. If you enter more than one criteria, the search returns only those content vendors which match *all* the criteria you entered. If you leave all fields blank, the search returns all content vendors defined in the system.

The search results are displayed in a table. For each content vendor, the following details are displayed:

- Name of the content vendor
- · Description of the vendor
- Status of the vendor
- · Vendor Type
- Access URL
- Synchronization Information (applicable only for OLSA type vendors)

You can edit a content vendor by clicking on its link. For OLSA type content vendors, you can perform the following tasks from the **Actions** column.

- Discontinue a vendor that is in Active or Suspended state.
- Delete a vendor in **Draft** state.
- Manually synchronize the catalog. This is applicable only to active OLSA type vendors.



You cannot perform any action from this page for content vendors of type Saba or CIF.

Appendix



Using the Windows Explorer Plug-in

Topics:

- Overview of the Windows Explorer Plug-in
- Logging into Saba through the Plug-in
- Browsing the Repository
- Creating Directories in the Repository
- Importing Content into the Repository
- Downloading Content from the Repository

This appendix describes how to use the Windows Explorer Plug-in for Saba Content Manager to access the various content and asset repositories in Saba Content Manager.

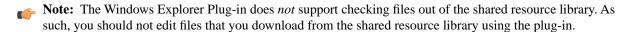
Overview of the Windows Explorer Plug-in

This plug-in provides access to the Saba Content Management repositories from within Windows Explorer. After installation, it appears as an icon under **Desktop** in Windows Explorer. You can also access it from an icon that is placed on your Windows Desktop.

Plug-in Features

Using the same interface that you use to manage files and folders in Windows Explorer, you can quickly and easily perform the following content management tasks:

- Browse the Saba Content Repository (Shared Resource Library, Production Library, and Knowledge Base) in Saba Content Management.
- Create directories in the Saba Content Repository.
- Import SCORM content and files into the Saba Content Repository.
- Download files from the Saba Content Repository to your local file system.



Who Can Use the Plug-in?

The Windows Explorer Plug-in can be used by any users who have content developer or administrator privileges for Saba Content Manager.

The plug-in is *not* intended to replace Saba Content Manager, but it does provide access to many Saba Content Manager features directly in Windows Explorer.

Installing the Plug-in

The Windows Explorer Plug-in is provided as a client for the application and can be installed on any Windows platform supported by Saba. The installer for the plug-in is included in the product distribution and can be obtained from your system administrator.

For more information about the installer, including instructions for installing the plug-in, please contact your Saba administrator.

Logging into Saba through the Plug-in

Before you can use the Windows Explorer Plug-in to access the Saba Content Repository, you must first log into Saba through the plug-in.

To log in:

- 1. Click on the Saba Content Repository icon in Windows Explorer or on your Desktop.
- 2. In the login pop-up window that appears, enter the same username and password you use to log into Saba Content Manager.
- 3. Select the Site from the drop-down list.
- 4. Click OK.
 - Tip: If you don't want to enter your username and password each time you access the plug-in, select the Remember Me check box.

The Saba Content Repository icon expands to display the three repositories.

Once you are logged into the repository, you do not need to log in again for any new instances of Windows Explorer you open.

Logging Out

The Windows Explorer Plug-in does not have an explicit logout. If the time-out period passes (as defined by your Saba system administrator), the plug-in automatically times out.

To log back in, simply click on the icon again.

Browsing the Repository

Once you have logged in, you can browse through any of the repositories in Saba Content Management, including the SRL (Shared Resource Library), the Production Repository, and the Knowledge Base.

You can use any of the standard Windows Explorer mechanisms for browsing the repositories:

- Clicking the name of a directory in the hierarchy on the left expands the directory to display all of the sub-directories in the directory. In addition, the entire contents of the directory, including files, are displayed on the right.
- Clicking the '+' or '-' icons next to a directory name expands/collapses the directory, but does not change the display on the right.

You can also expand or collapse a directory structure by right-clicking on the directory and using the menu options.

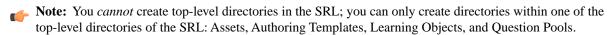


Note: When browsing the hierarchy, remember that you are not viewing actual directories or files in your local file system. As such, you cannot perform some of the tasks you would expect in Windows Explorer, including opening/viewing files and renaming/deleting directories.

Creating Directories in the Repository

Using the Windows Explorer Plug-in, you can create directories in any of the three content repositories:

- SRL (Shared Resource Library)
- Production Repository
- Knowledge Base



To create a directory:

- 1. Select the repository (or directory) in which you wish to create the directory.
- 2. From either the File menu or by right-clicking directly on the repository/directory, select New Folder... from the drop-down list.
- 3. Enter the name of the directory and click **OK**.

One of the most powerful features provided by the Windows Explorer Plug-in is the ability to import content directly into the Saba Content Repository from within Windows Explorer.

Importing content through the plug-in is easy because you do not need to enter any information about the content. The plug-in automatically detects the type of content you are importing (SCORM or file) and defaults the necessary information.

To import content:

- 1. In the repository, navigate to the directory in which you wish to import the content.
- 2. Right-click on the directory and select **Import...** from the menu.
- 3. In the pop-up window that appears, enter the name of the content file you wish to import, including the directory path where the content is located, or browse the file system to find the file.
- **4.** Click the **OK** button to start the import.

A pop-up window appears, providing a progress/status bar for the import.



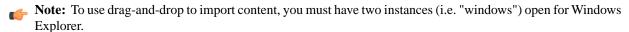
Note: If you wish to enter additional information about the content you imported or change any of the default information, you can make the changes in Saba Content Manager and/or through the Content Administration module in the application, depending on the repository into which you imported the content.

Importing Content Using Drag-and-Drop

In addition to using the **Import...** menu option for a directory, you can use drag-and-drop to import a file.

To import a file using drag-and-drop:

- 1. Open two instances of Windows Explorer.
- 2. In the first instance, find the file you wish to import.
- 3. Drag the file to the desired Saba Content Repository directory in the second instance of Windows Explorer.



Downloading Content from the Repository

Downloading content from the Saba Content Repository is easy to do using the plug-in:

1. In the plug-in, navigate through the hierarchy on the left and click on the name of the directory containing the content you wish to download.

The contents of the directory are displayed on the right.

- 2. Right-click on the content you wish to download and select **Download** from the menu.
- 3. Specify the directory on your local file system into which the content will be downloaded.
- **4.** Click **OK** to begin the download.

Note: Downloading content is the equivalent of performing a "get" from the repository. It does not check out the content for editing.

Appendix

B

Saba Online Player

Topics:

- Overview of Saba Online Player
- Launching Content Using Saba Online Player
- Navigating Inside Saba Online Player
- Online Player Auto Navigate and Auto Close Capability
- Online Player Exit Behavior
- Fault Tolerance During Player Launch

This appendix describes how to launch Saba Online Player and navigate within it. It also describes how to interact with content using Saba Online Player.

Overview of Saba Online Player

The Saba Online Player environment provides an interface for viewing and interacting with online content.

When Saba Content Management is enabled on your system, content administrators can configure player templates and associate these configured templates with content. This controls the visual appearance of the player during runtime.

When Saba Content Management is disabled on your system, you cannot create new player templates. However, you can edit the properties of the existing two player templates (Empty player template and system defined template).

Using Saba Online Player, you can send interaction data back to the system. For more information, see *Sending Content Interaction Data After Session Time-Out*.

Sending Content Interaction Data After Session Time-Out

For content that support runtime tracking capabilities, you can send interaction data back to the system, using Saba Online Player. The interaction data is sent back to the system, even if your session times out while you are completing the content.

Launching Content Using Saba Online Player

The Saba Online Player is used to launch online content and interact with it. Any user in Saba can launch content using the Online Player.

To launch content in Saba, you register for the appropriate catalog item from the Saba Learning Catalog. Once your registration is confirmed, you launch the content as follows:

- 1. Go to My Saba > My Learning > My Enrollments.
- 2. This displays all your enrollments. Click the **Launch** link of the required module or offering that contains the content. This opens the Saba Online Player and launches the content.
- **3.** Navigate through the content and exit when you are finished. For information about navigating within the Saba Online Player, see *Navigating Inside Saba Online Player*.

When online content is launched, it plays inside the Saba Online Player. The visual appearance of the online player is controlled by the player template that is associated with the content.

The application ships with a single system defined player template that is associated with content by default. When Saba Content Management is enabled on your system, content administrators can configure player templates and associate these configured player templates with content. Hence the visual appearance of the Online Player during runtime is controlled by the player template that is associated with the content.

When content is launched using a player template, it opens a pop-up window displaying the following:

- A navigation bar that displays the following:
 - < (**Previous**) and > (**Next**) buttons.

If no content is launched, all buttons are disabled except **Next** button. For content that does not support its own sequencing, the **Previous** button is disabled for the first SCO and **Next** button disabled for the last SCO. The **Previous** and **Next** buttons are not displayed if there is only one SCO. Clicking any button will automatically unload the current SCO and load the next selected SCO to the content window.

• **X** (**Close**) button to close the player.

The online player remains open even after you have finished navigating through the content. You need to explicitly click the **Close** button to close the online player. However, for AICC or SCORM content authored using Saba Publisher, and published to the content repository with the check box **The Published course will be presented** in a separate window from the LMS selected during the publishing process, the content plays in a separate window that closes when you exit the content.

- **Show Results** icon that displays the overall results for all lessons in the content. You can navigate to the results and attempts information for each lesson.
- The navigation bar is displayed only if content administrator has selected the **Show Navigation Controls** check box while creating the player template that is associated with this content.
- **Table of Contents** that displays the organization of learning items.
 - For content that does not define sequencing, you can navigate through the content from the **Table of Contents**.
 - However for content that supports sequencing, the Table of Contents is just for your reference. You cannot use
 the Table of Contents to navigate through the SCOs, instead you need to use navigation bar to navigate between
 SCOs.
 - In the **Table of Contents**, lesson status icon is displayed for all items (lessons) in the Table of Contents. Clicking on the lesson status icon of a lesson opens a new window that displays information about all attempts for that lesson.
 - The currently launched content item is underlined in the **Table of Contents**.
 - The **Table of Contents** is displayed only if content administrator has selected the **Show Table of Contents** check box while creating the player template that is associated with this content.
- Content area displays the content
- A header
 - The header is displayed only if content administrator has selected the **Display Header** check box while creating the player template that is associated with this content.
 - The system defined player template displays the following links in the header:
 - References
 - Email
 - Help
 - Print

These links are displayed only if they are provided in Header HTML of the player template. Content administrators can replace these links with any other links of their choice, while creating or editing the player template.

A footer

- The footer is displayed only if content administrator has selected the **Display Footer** check box while creating the player template that is associated with this content.
- Content administrators can customize the footer. They can provide HTML code to create (or modify) footers of their choice.

The auto navigation capability of the Online Player enables automatic navigation from one Lesson/SCO to next Lesson/SCO on completion of the Lesson/SCO. When the Lesson/SCO in the content makes LMSFinish call, the Online Player automatically navigates to the next Lesson/SCO.

The auto close capability of the Online Player closes the player on completion of the content. When the last Lesson/SCO in the content makes an LMSFinish call, the Online Player automatically closes.

For more information, see:

- Behavior Matrix When Launching SCORM 1.2 Content
- What Does Completion of Content SCO mean?
- How is Auto Close and Auto Navigate Capability Associated with Player Template?

Behavior Matrix When Launching SCORM 1.2 Content

The matrix below describes the player behavior when launching SCORM 1.2 content using Saba Online Player templates associated with the new capabilities:

SCORM 1.2 Content	Close Player on Content Completion 0 - No1 - Yes	Player Template Auto Close	Player Template Auto Navigate	Behavior
multi SCO	0	0	0	User managed navigation, user initiated player close.
multi SCO	0	0	1	On completion of a Lesson/SCO, player will auto~ matically load the next Lesson/SCO in the content. The action on Exit from last Lesson/SCO is that the 'Please choose a navigation action' message will come up in the content frame as there is no Les~ son/SCO to load.
multi SCO	0	1	0	Player will close itself on completion of the last Lesson/SCO in the content.
multi SCO	0	1	1	On completion of a Lesson/SCO, player will auto~ matically load the next Lesson/SCO in the content. And on completion of the last Lesson/SCO in the content, player will close itself.
multi SCO	1	0	0	User managed navigation. Content will close player as defined in the content typical behavior on com~pletion of last Lesson/SCO.
multi SCO	1	0	1	On completion of a Lesson/SCO, player will auto~ matically load the next Lesson/SCO in the content. Content will close player as defined in the content typical behavior on completion of last Lesson/SCO.

SCORM 1.2 Content	Close Player on Content Completion 0 - No1 - Yes	Player Template Auto Close	Player Template Auto Navigate	Behavior
multi SCO	1	1	0	Content/Player will close player as defined in the content typical behavior on completion of last Lesson/SCO.
multi SCO	1	1	1	On completion of a Lesson/SCO, player will auto~matically load the next Lesson/SCO in the content. Content/Player will close player as defined in the content typical behavior on completion of last Lesson/SCO.
single SCO	0	0	0	User initiated player close.
single SCO	0	0	1	User initiated player close.
single SCO	0	1	0	Player closes itself on completion of Lesson/SCO.
single SCO	0	1	1	Player closes itself on completion of Lesson/SCO.
single SCO	1	0	0	Content/Player will close player as defined in the content typical behavior on completion of Les~son/SCO.
single SCO	1	0	1	Content/Player will close player as defined in the content typical behavior on completion of Les~son/SCO.
single SCO	1	1	0	Content/Player will close player as defined in the content typical behavior on completion of Les~son/SCO.
single SCO	1	1	1	Content/Player will close player as defined in the content typical behavior on completion of Les~son/SCO.

Note: For SCORM 1.2 content, user navigation request such as user making a navigation request via the TOC or Navigation control overrides "Auto Navigation" setting. The only exception to this behavior is the case when "Auto Close" setting is enabled. If a user makes a navigation choice and the current Lesson/SCO is the last Lesson/SCO in the content, then the Player closes when the Lesson/SCO notifies completion of Lesson/SCO (i.e. LMSFinish call from the Lesson/SCO).

What Does Completion of Content SCO mean?

An SCO is completed when LMSFinish call is made by the content SCO. The timing of this call is dependent on the content.

How is Auto Close and Auto Navigate Capability Associated with Player Template?

There are new attributes "Close Player on SCORM 1.2 content completion" and "Use Auto Navigation for SCORM 1.2 Content" available in the **Player Template Detail** page. Selecting these attributes in this page and saving it will associate the respective behavior to the player Template.

Online Player Exit Behavior

When content is launched in the Saba player, the player may be closed automatically if the sequencer returns Course Complete or Exit Session status in the course of navigation. Sometimes the sequencer expects the user to explicitly complete the content, or the user may close the player without completing the content.

The Saba Online Player is closed when you performs any one of the following actions:

- Click the Close button on the navigation bar.
- Click the browser close button.

In both cases, the following exit options are displayed:

Exit and Finish

Use this option to complete the current content attempt. The next time you launch the content, it is considered as a new content attempt.

· Exit and Resume Later

Use this option to save the current content attempt and resume it later from where you left the content.

· Exit without Saving

Use this option to abandon this attempt and start a fresh with new attempt later.



This behavior is applicabe for SCORM 2004 content only.

There may be times when the content to LMS communication is broken due to client machine shutdown, server shutdown, network failure or any such failure. In such cases, the sequencer may not behave correctly when the content is re-launched

The system now checks for such scenarios during content launch. If it finds that the content attempt is incomplete and there is no suspended activity, it suspends the current activity and then issues the Resume All navigation request. It helps sequencer recover from the indeterminate state caused due to communication failure.



This is applicabe for SCORM 2004 content only.

Appendix

C

Saba Offline Player

Topics:

- Overview of Saba Offline Player
- Installing Saba Offline Player
- Launching Content Using Saba Offline Player
- Navigating Inside Saba Offline Player
- Ability to Take Content Partially Offline and Resume Online

This appendix describes how to launch Saba Offline Player and navigate within it. It also describes how to interact with content using Saba Offline Player.

The Saba Offline Player provides an interface for viewing and interacting with content offline. You can download and consume content offline with full tracking and synchronization capabilities. The Saba Offline Player works in a Windows environment.

The Offline Player provides the following capabilities:

- Plays SCORM content.
- Displays an Offline Enrollment page, that lists the downloaded SCORM courses grouped by the owning offering.
- Communicates data to/from SCORM content at runtime.
- Tracks and records learning results for content taken offline.
- Displays attempt and interaction data.
- Reports results to Saba.

Saba Offline Player supports SCORM 1.2 content formats.

Installing Saba Offline Player

You can download Saba Offline Player from Saba Web and install it on your local machine. After you download the player, you can download offline content and play it even when you are disconnected from the Saba application server. You do not need to download Saba Offline Player each time you download offline content.

To install Saba Offline Player on your machine, perform the following tasks:

- 1. Download Saba Offline Player
- 2. Install Saba Offline Player

Note: Before you install Saba Offline Player, the .NET Framework 1.1 must be installed on your machine.

Download Saba Offline Player

When you register for an offline content from the learning catalog and can click on its launch link, it displays the **Download Offline Content for:** page. Here, you download the Offline Player (if it is not already installed on your local machine) and then download the offline content.

To download the Saba Offline Player:

- 1. Go to My Saba > My Learning > My Enrollments.
- 2. Find the offering you registered for, and click on the **Launch** link of an offline content module inside the offering.
- 3. This displays the **Download Offline Content for:** page with the following download links:

Download Link	Description
Click here to download the runtime program	Downloads the Offline Player installer, to a user-specified folder on your machine. Note: You need to download the Offline Player only once to your machine.
Click here to download the offline content	Downloads the content to a user-specified directory on your machine.

4. Click on the link **Click here to download the runtime program** to download the Offline Player. You can save the Offline Player installer (SabaOfflinePlayerSetup.msi) to any folder on your local machine. Remember the location where you saved this installer.

Install Saba Offline Player

To install Saba Offline Player:

- 1. On your local machine, go the location where you saved the Saba Offline Player installer (OfflineContentDelivery.exe).
- 2. Double-click on the installer to run it. You can choose the folder on your machine where you want to install the Offline Player.

This installs Saba Offline Player on your machine. It creates an entry on the start menu, and a desktop shortcut pointing to the Offline Player. It also creates a file extension mapping.

Updates to the Saba Offline Player are not automatic. You need to download and re-install the player when a new version of the Offline Player is available.

Launching Content Using Saba Offline Player

The Saba Offline Player is used to launch offline content and interact with it. Any user in Saba can consume SCORM 1.2 content that is available for offline delivery. For content that can be taken offline, the content inventory has the **Available Offline** check box selected.

Content is downloaded to Offline Player as SCORM Packages. SCORM packages may contain both interactive learning items (SCOs) and plain web resources. The package file name has an extension .sabaol

To launch offline content in Saba, you register for the appropriate catalog item from the Saba Learning Catalog. Once your registration is the confirmed, you launch the content as follows:

- 1. Go to My Saba > My Learning > My Enrollments.
- This displays all your enrollments. Click the Launch link of the required module or offering that contains the offline content. This opens the Download Offline Content for: page.
 - **Note:** Saba offline player must be installed on your machine before you download offline content and play it. To install the Offline Player, see *Installing Saba Offline Player*.
- **3.** Click on the link **Click here to download the offline content**. You can download the content to any folder on your local machine. The content you download has .sabaol extension.
- 4. Disconnect form the Saba application server.
- 5. Double-click the downloaded content. This displays the Saba Offline Player with the table of contents.
- **6.** Navigate through the content and exit when you are finished. For information on using the Offline Player, see *Navigating Inside Saba Offline Player*.
- 7. To view the results, click on the **Results** link on the offline enrollments page.

Offline Content Nomenclature

SCORM offline content nomenclature depends on whether the content is consumed directly or the content is attached to a course or offering.

The name of the downloaded file used by Saba Offline Player is:

- · For objects consumed directly from the Production repository or Knowledge Base:
 - "<content name>_<unique identifier>.sabao1"
- For other subscribers of content, such as courses and offerings:
 - "<course name>_<content name>_<unique identifier>.sabaol"

Navigating Inside Saba Offline Player

This topic covers the following:

- Launching Saba Offline Player
- Understanding the interface
- Importing Content into Offline Player
- Consuming Offline Content
- Viewing Results
- Synchronizing Results with Saba
- Deleting Content

Launching Saba Offline Player

The Saba Offline Player is a stand-alone windows based application. To launch the Saba Offline Player, click on its desktop shortcut. You can also launch it from the start menu or by double clicking on Saba_Offline_Player.exe in windows explorer.

Understanding the interface

When you open the Saba Offline Player, it displays the offline enrollments screen, with the menu items and toolbar above the enrollments screen. The toolbar can be switched on or off by clicking **View** > **Toolbar**.

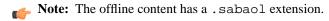
The offline enrollments screen contains:

- List of courses (offerings)
- Each offering can contain multiple content packages (SCORM packages)
- Each content package can contain multiple lessons (SCOs)

When you select a lesson (SCO) and play it, a two pane window is displayed with the content playing in the right pane and the table of contents for the selected item on the left pane. For each lesson, you can view the status and score (if any). You can navigate between SCOs by clicking on the **Next** or **Previous** buttons.

Importing Content into Offline Player

All offline content that you have downloaded can be imported into Saba Offline Player.



You can import content into the Offline Player, using any of the following methods:

- From windows explorer, by double clicking on the offline content.
- From Offline Player as follows:
 - 1. Click on **Import** icon or click **File** > **Import**.
 - 2. Navigate to the folder where you downloaded the offline content, select the appropriate file and click **Open**.

After you import the offline content, it is displayed in the offline enrollments screen.

Consuming Offline Content

You can play any content that is listed on the offline enrollments screen. The content can be tracked and results can be reported back to Saba.

To consume an offline content:

- 1. Select the lesson (SCO) to be launched from the offline enrollments screen.
- 2. Click on Play Content icon or click Play > Start.

While playing content, you can do the following:

- Navigate between SCOs by clicking on the Next or Previous buttons.
- View results. For information, see *Viewing Results*.
- Return to the offline enrollments screen by clicking the Back to list of available courses icon.

Viewing Results

You can view results of a course from the offline enrollments screen and from the play content screen.

To view results:

- 1. Click on **Results** icon or click **View** > **Results**.
- 2. This displays the results for the selected lesson. Double click on it view the following details:
 - · List of attempts for the selected lesson
 - For each attempt, you can view the lesson status, score (if any), date of the attempt, time spent of the lesson.
 - For lessons containing questions, you can view each question name, type of question, date and time when the question was taken, response, result, time spent, and the question text.
- 3. Click Close.
- 4. Return to the offline enrollments screen by clicking the **Back to list of available courses** icon.

Synchronizing Results with Saba

You can upload or synchronize the results of content taken offline. Offline Player stores and synchronizes results as follows:

- Every attempt to take a SCO is recorded and preserved locally.
- Offline Player reports results to Saba in chronological order. This enables Saba can apply its completion algorithms as if the attempts are coming in real time from online player.

To synchronize results:

- 1. On the offline enrollments screen, select the appropriate lesson.
- 2. Click on Synchronize results with Saba icon or click Tools > Synchronize.
- **3.** After the synchronization is complete, a message is displayed.

Deleting Content

You can delete courses from the offline enrollments page. To delete a course, select the course and click **Delete icon** or click **Edit** > **Delete**.

Once you delete a course, the result data, original file and deployed package are all removed from your local machine.

Note: If you moved the original package to a different location manually prior to deleting it, the package will not be removed from the file system.

Saba provides the ability to take content partially offline, and then resume online.

The offline player supports a workflow where a user takes the content offline, partially completes the content, synchronizes the results information, and then resumes progress of the content in the online player.



Note: The Offline Player supports only SCORM 1.2 content.

When a user synchronizes the results information to the server, the offline player pushes core_vendor and suspend_data to the LMS. Therefore, the content retrieves the context where the user paused, when the user resumes in the online player.

Appendix

D

Integration with QuestionMark Perception

Topics:

Configuring the Integration

Questionmark Perception is third-party software that enables companies to author, administer, deliver, and report on web-based assessments. Perception provides the ability to create and use assessments for a variety of purposes, including, but not limited to:

- Needs and placement analysis
- Assessments of knowledge, competency, and skills
- Evaluations of courses and other catalog items
- · Product knowledge assessments
- Certification exams

Content administrators can create assessments in Perception and make them available as AICC content. Learners can launch assessments and track their scores. As learners take assessments, the questions are provided to them dynamically and they receive instant feedback as they answer them.

Authoring an assessment does not require programming skills. Administrators can add graphics and select from a number of different question formats (multiple choice or true/false, for example). Questions are stored and categorized in a database, making it easy to create different assessments from the same collection of questions.

This Appendix explains how to integrate Perception assessments in your application environment.

Configuring the Integration

To configure the Perception assessment integration, you must complete the following sections:

- 1. Installing Questionmark Perception
- 2. Configuring the Saba PIP File
- 3. Configuring the Template
- **4.** Additional Configuration for SSL
- 5. Importing Perception Assessments

Note: For additional basic information about Questionmark Perception server installation and setup, see the user documentation provided with the software or visit the Perception web site.

Installing Questionmark Perception

Install Questionmark Perception on a server that has synchronous communication with your application environment. For basic information about Questionmark Perception server installation and setup, see the user documentation provided with the software or visit the Perception web site.

Configuring the Saba PIP File

The PIP interface between Saba Enterprise and Questionmark Perception is configured using the saba.pip file. Create the saba.pip in the folder where Perception expects to find PIP files.

To create the saba.pip file:

- 1. Navigate to the directory on your Perception server where the perception.ini file is located (C:\PerceptionX\Server\, by default, where X is the Perception version installed).
- 2. Open perception.ini in a text editor, such as Notepad.
- 3. Ensure the directory entry under [Directories] points to the pip directory on your Perception server.

For example.

directory=C:\Perception3\Server\pip\

- 4. Navigate to the pip directory (C:\PerceptionX\Server\pip, by default, where X is the Perception version installed).
- **5.** Create a new file named saba.pip in the directory. Copy the following lines into the blank file. (Alternatively, you could download the PIP file from http://www.questionmark.com/communities/getdown)
 - ; saba.pip
 - ; Question Mark Perception PIP configuration file
 - ; generic file to provide AICC support

; 11th June 2001

[Input]

NAME=Student_Name

SESSION=Lesson_ID

NOTIFY=aicc_url

SESSION_ID=aicc_sid

[Settings]

Method=POST

```
Header=Content-Type: application/x-www-form-urlencoded
OutputFormat=%s=%s&
AICC=yes
UseAICCExit=yes
[Security]
Level=none
[AICC Get]
command="GetParam"
version="2.0"
session_id=SESSION_ID
[AICC Put]
command="PutParam"
version="2.0"
session_id=SESSION_ID
[AICC Exit]
command="ExitAU"
version="2.0"
session_id=SESSION_ID
```

Configuring the Template

6. Save the file.

Templates are text files that provide style-sheet functions for Perception assessments. The template file defines the default exit behavior for an assessment. The template defines which page in the application is displayed when the learner completes the assessment, and which frame is targeted.

To configure the template:

- 1. Navigate to the directory on your Perception server where the template files are located (C:\PerceptionX\Server\Templates, by default, where X is the Perception version installed).
- 2. Open each template file your company uses in a text editor, such as Notepad.
- **3.** Add a blank line under [DOCUMENT], followed by the following line:

```
TARGET=TARGET="main"
```

4. Save the template file.

Additional Configuration for SSL

If your Saba environment uses Secure Sockets Layer (SSL) to encrypt data, contact Questionmark Customer Support to obtain an updated session.dll file. Install the file on the Questionmark server in accordance with instructions provided.

Troubleshooting the Integration

This section provides information for the troubleshooting the Questionmark Perception integration.

Network Logon Window Appears When Submitting Assessments

When learners submit completed assessments, a network logon window could appear. The issue has been encountered on Windows NT networks where Saba and the Perception server are located on a company's DMZ. The fix involves updating a URL on the Perception server, changing its IP address to a static, fully-qualified domain name.

To update the setting:

- 1. Log in to the Perception Enterprise Manager.
- 2. Click System Adminstration.
- 3. Click Server Management.
- 4. Click Server Settings.
- 5. Scroll down to the Web server area.
- **6.** Change the **Server Root** value to the fully-qualified domain name for the Perception server (for example, perception.company.com). If Perception is running on a non-standard Web port, specify the port (for example, perception.company.com:8080).
- 7. Click Save & Exit.

The setting is updated.

Importing Perception Assessments

Import Perception assessments as AICC URLs.

To import Perception assessments, complete the steps in the following sections:

- Step 1: Enter Content Details
- Step 2: Import Content

Step 1: Enter Content Details

On this page, you provide information general about the content (information which does not depend on the content format). Enter the following information:

Table 44: Import Content Wizard: Content Details

Field	Description
Name	A name for the content object.
Security Domain	The security domain for the content object. To enter a security domain, click the "picker" icon. Note Users will not be allowed to use the content object unless they have permission to access the specified security domain. To make the content available to all users, choose the "world" domain.
Content Format	Choose the content format from this the drop-down list. On the next page of the wizard, you will enter information specific to the content format you choose.
Player Template	The player template used to launch the content. If content is enabled on your system, you can select the player template that you want to associate with the content. If content is disabled on your system, you cannot choose the player template. The content is launched using the system defined player template.

When you have entered the required information, click Next.

Step 2: Import Content

On the Import Content page, you provide content format-specific information about the content you are importing. You would provide the location of a file or directory that you want to upload to the content store. In addition, you may provide information for any additional data fields defined by your system administrator

After entering all the necessary information, click **Import** to upload the content to the Saba content store. Once you finish importing the content, Saba shows you a summary page describing the content object. In addition, you can preview the content in the Saba content browser by clicking the **Preview Content** link from this page.

Once you have imported the content, learning items can subscribe to it (making it available to learners).

To import the Perception assessment as AICC content:

- 1. Select the URL check box.
- 2. Enter the Absolute URL.

Format the URL as follows:

http://<servername>/<dir>/session.dll?CALL=saba&SESSION=<session ID>

Where:

- <servername> is the web server where Perception Server resides
- <dir> is the virtual directory established when installing Perception Server pip
- <parameter> is a static parameter whose value is based on the PIP file in use

<session id> is a static parameter whose value is a 16 digit number that uniquely identifies Perception content to the Perception Server. The 16 digit number is obtained from the Perception program Session Manager.

For example:

http://10.9.12.26/q/session.dll?CALL=saba&SESSION=6605683306968851

- 3. Select the **Deployed on Secure Server** check box, if the content is to be delivered in a secure mode.
- 4. Enter the security context for secure content if the **Deployed on Secure Server** check box is selected.
- 5. Click Import.

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